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America in the 21st Century

A DEMOGRAPHIC OVERVIEW

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America in the 21st Century:
A Demographic Overview
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America in the 21st Century

A DEMOGRAPHIC OVERVIEW

In a number of ways, the 21st century has already arrived – at least in demographic terms. The U.S. labor force of the next century is already born (although not all in the United States); next century's first high-school graduating class (as well as its drop-outs) are already in grade school; and the elderly of the 21st century are already well down paths that will determine their financial and health care needs for old age.

During the past quarter-century, the U.S. has experienced unprecedented change in its social, economic, and demographic structures, and further changes are inevitably on their way. Indeed, the impact that changing social and demographic factors have exerted on our individual lives and on society as a whole has been profound. These forces will continue to play a major role in shaping policies and programs in both the public and private sectors in the years ahead. Gaining a better understanding of the scope and depth of demographic changes, their interrelationships, and the effects that they have on social and economic institutions will help us deal more effectively with these forces now and in the next century.

This report is the first in a series of publications on "America in the 21st Century" prepared by the Population Reference Bureau under a grant from the Ford Foundation. The series will highlight the importance of demographic change in shaping our local communities and world environment as we enter the 21st century. The purpose of this report is to provide an overview of several demographic trends that will lay the groundwork of future social and economic conditions. Subsequent reports in the series will build on this framework to address six specific policy areas:

- Human Resource Development
- Social and Economic Support Systems
- Infrastructure Needs
- Environmental Concerns
- Governance and Politics
- The U.S. in a Changing World

Together, these reports cover a broad range of issue areas and interrelated topics. They are designed to inform and challenge our thinking about the future and the kind of world we are likely to face as we enter the 21st century.

DEMOGRAPHIC CHANGES AND CHALLENGES

From a demographic perspective, the future has already arrived. Over 80 percent of the people who will make up the population of the United States in the year 2000 are now alive. The public policy decisions that we make today will affect their world of tomorrow.

No single factor will determine what life will be like in the 21st century. Many events – social, political, economic, cultural, technological, even climatological – will have a hand in shaping tomorrow's world. But the role that demography plays in determining our personal choices and public policy options is often overlooked in policy debates. Demography is not destiny, but it is a very fundamental influence in shaping the course of human events.

This report discusses seven major demographic trends that will have a significant impact on the social and economic fabric of American life in the century ahead. These include:

- the aging of the population;
- changes in our household and family structures;
- changes in our racial and ethnic composition;
- changes in our residential patterns;
- changes in the distribution of income and wealth;
- changes in our labor force needs; and
- the changing global demographic picture.

Although these trends may be examined as separate phenomena, they nevertheless interact with one another in a number of significant ways. The sections that follow take a closer look at these key demographic factors, review past trends, project their likely future courses, and analyze their implications for public policy and private actions in the years ahead.

The Aging of America

By now, most everyone has heard of "The Aging of America." But what exactly does this phrase mean demographically, and what does it imply about our future? We know, for example, that life expectancy has increased, which means that people are living longer. But how do these added years of life affect the quality of life for our elders and their potential need for assistance? Are older people living healthier and more active lives, or are they living longer with chronic and disabling conditions? We know that because men have higher mortality rates than women, there are far more women than men in the older population, especially at extreme old age. Will the aging of America become a women's issue (at least in political terms) or can ways be found to increase the life expectancy of men? Finally, we know that the basic age structure of our population is changing. Persistently low birth rates mean that the size of the younger age groups in the population is declining relative to the older age groups. How will society adjust to this change and how will it provide for the needs of both the young and the old? Let us look at some of the basic demographic facts.

Over the past 40 years, the size of the older population has increased dramatically. In 1950, only 12 million Americans were age 65 or older. Today, the number is close to 30 million, and it is projected to increase to 65 million by 2030. Indeed, the elderly population has grown from less than 10 percent of our population in 1950 to about 12 percent today, and could represent over 20 percent by 2030. Furthermore, the oldest of the old, those age 85 and older, make up the fastest-growing segment of the population. By 2030, their numbers will triple, accounting for more than 8.6 million persons. This group of elderly — the oldest-old — has the greatest need for services and places considerable demand on service delivery systems. Studies show, for example, that persons age 85 and older are four times more likely than those age 65 to 74 to require long-term care services. Projected growth of the older population, especially among the extremely aged, could place an enormous strain on services and programs that serve the elderly.

By 2030, the number of people age 85 and older will triple, accounting for more than 8.6 million persons.

But the aging of America implies more than a simple increase in the size of the older population. The median age of the population is gradually increasing and the relative size of the younger age groups vis-à-vis the older age groups is gradually declining. This decline reduces the number of younger working people who will be available to support the growing number of older retirees. Will the needs of tomorrow's elderly outstrip the ability (or willingness) of younger people to provide for them? Will policy makers want to provide incentives to increase U.S. birth rates, allow more immigration, or do both? How can we create equitable policies for all age groups in society?

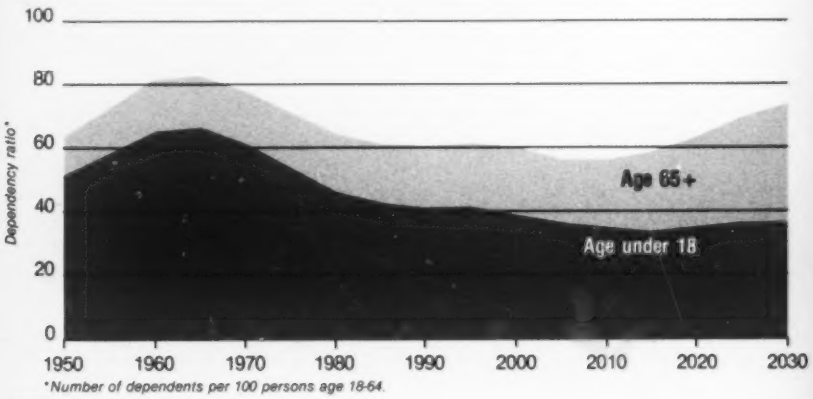
The post-World War II baby boom (occurring between 1946 and 1964) created a major bulge in our population age structure. People born during that period are now between the ages of 25 and 45. The subsequent birth dearth (starting in 1970) has created a relative scarcity of individuals below age 20. At this time, the baby boom cohort is entering its prime productive work years and will dominate the work force for the next 30 years. Because income typically rises with age and experience, these workers should have the earnings capacity to sustain current programs for today's elderly.

The real demographic imbalance will arise early next century when the baby boom cohort begins to retire. This will begin to happen as soon

as the year 2001 when the first members of the baby boom reach age 55. The real impact, however, will begin after 2011. Because the cohorts that follow the baby boom generation are relatively small in size, there is some concern that supporting the elderly retirees of tomorrow might become a severe financial burden on future workers. In response to this concern, the Social Security Administration will begin to raise the age at which new retirees will be eligible for full benefits. Beginning in 2000 and continuing over a 27 year period, the age at which an individual may retire with full Social Security benefits will gradually rise from 65 to 67.

Policy analysts have tried to capture the complex notion of changing dependency burdens in a simple demographic measure called the *aged dependency ratio*. This ratio reflects the number of elderly persons (age 65 and older) to all persons

Figure 1.
DEPENDENCY TRENDS: CHILDREN AND ELDERLY, 1950 TO 2030



*Number of dependents per 100 persons age 18-64.

SOURCE: U.S. Bureau of the Census.

of working age (ages 18 to 64). Over the past few decades, the aged dependency ratio has steadily increased. In 1950, there were about 13 elderly for every 100 people in the working age group. Today the ratio is 20 per 100, and by 2030, it could rise to 37 per 100.

Although the aged dependency ratio is a useful barometer of change, it is somewhat misleading to focus policy debates on this single measure. The aged dependency ratio does not take into account changing labor force patterns nor the decreasing number of children in the population. As figure 1 illustrates, if children are added to the dependency ratio, a somewhat different picture emerges. Between 1950 and 1970, the *total dependency ratio* (taking both children and elderly into

account) was dominated by the number of children born during the baby boom period. As the number of children declined, the share of elderly increased. But at no time during the next 50 years will the total dependency ratio exceed the level it attained in 1964 at the height of the baby boom. What is at issue in current policy debates is the relative costs and financial mechanisms for supporting younger and older segments of the population.

Nevertheless, this highly predictable shift in the societal age structure away from the young and towards the old is likely to have a significant impact on our labor markets and other institutions in society. The business community already is encountering a scarcity of younger workers to fill entry-level jobs at current wages. People age 18 to 24 currently comprise 18 percent of the traditional working age population (ages 18 to 64), but will account for only 15 percent of this group in the year 2000. Fast food services and other industries that in the past relied heavily on young workers are now actively recruiting older persons to fill vacant positions.

But the relative scarcity of young people also has important implications for schools and educational institutions. As the number of entry-level workers shrinks and the competition for their labor intensifies, public schools will experience greater pressure to graduate a higher percentage of students and to provide these graduates with marketable skills. The need for a better educated and more productive work force will grow during the 1990s, as industries respond to changing technologies and market competition. Policy makers will be asked to consider a variety of options to meet this need, such as investing additional resources to educate student groups that schools have not served well in the past or revising immigration policies to import needed workers with specific skills from abroad.

The aging of America raises several critical policy issues:

- We will need to plan for and provide services to increasing numbers of older people, particularly for those age 85 and older. Health care and retirement income programs will be most critically impacted by shifting demographic patterns.

- We will need to reformulate the level and kinds of investments that we make in our schools and job training programs. With fewer children in the population, schools will have an opportunity to reduce class size and give more attention to individual students.

- We will need to rethink our policies regarding work and retirement in order to accommodate our changing age structure and future labor force demands. Retraining (and retaining) older workers may become an economic necessity in the years ahead.

As the advertisement above indicates, businesses are actively recruiting older workers as the number of younger workers declines.

Changing Household and Family Structures

Since the 1960s, new social practices regarding marriage, divorce, childbearing, childrearing, and women's labor force participation have fundamentally altered the ways most Americans structure their lives. Fewer than one in 10 American families currently fits the traditional model of a husband who works outside the home, a wife who stays at home to attend to family affairs, and 3 or more children. Today, the typical family has but one or two children (or perhaps none at all) and both parents work outside the home. Birth rates are down; divorce rates are up; and general life-style patterns have changed substantially. More than 52 million women — many of them mothers with preschool children — have joined the paid labor force. Nearly 6 million households with young children are headed by a single parent. Two million households consist of unmarried couples living together, and over 8 million elderly persons (age 65 and older) live alone. Today, families and households take a multitude of forms.

Between 1970 and 1980, the number of households in America grew substantially, increasing by 27 percent. This surge was due in large part to the fact that members of the baby boom generation reached the stage in life where they left their parental home and formed households of their own. A rising divorce rate that often made two households out of one also added to the trend. Pressure on the housing market to absorb these newly formed households contributed to rising prices and skyrocketing rents. This pressure should begin to ease somewhat as smaller cohorts pass through these stages of the life cycle. Between now and the turn of the century, the number of new households will continue to grow, but at roughly half the rate of the 1970s.

The composition of U.S. households also has changed (see figure 2). In 1960, married couples (both with and without children) comprised 75 percent of all households. By 1980, this proportion dropped to 60 percent, and by 2000 married couples will represent just over half (53 percent) of all households. Meanwhile, the proportion of nonfamily households, that is, persons who live alone or with unrelated individuals, steadily increased. Whereas nonfamily households represented 15 percent of all household units in 1960, they will account for almost one-third of all households by 2000. This group is diverse. Many are elderly persons who live alone; others are younger people who delay or forego marriage; still others are "between marriages." Unless considerable change occurs in current patterns of marriage, divorce, and widowhood, such nonfamily households will continue to be a growing segment of the future housing market.

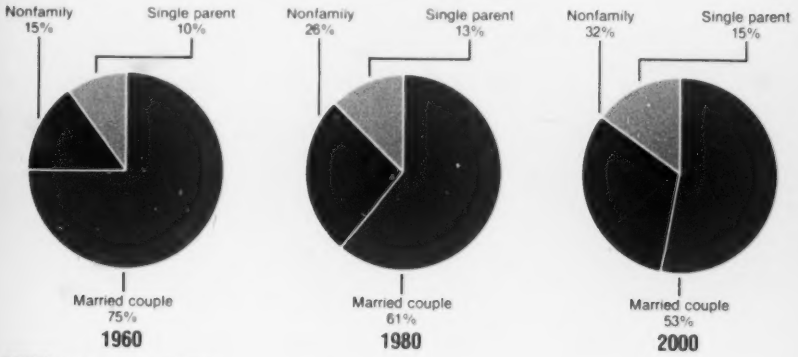
Even within the family unit, traditional patterns are giving way to new configurations. The growing incidence of divorce and out-of-wedlock births has fueled an enormous increase in single-parent

families. In 1960, only 9 percent of all children under age 18 lived with just one parent, usually the mother. Today, this proportion has grown to 23 percent or 14.6 million children.

New family patterns, along with increasing economic pressures and more employment opportunities for women, have sent more and more women into the paid labor force. Even women with preschool aged children — a traditional stay-at-home group — have joined the labor force in ever greater numbers. In 1950, only one of every eight married women with a child under the age of six sought employment; today, more than half do. Juggling the demands of work and family life have added new stresses and strains to the lives of many working

Figure 2.

CHANGING COMPOSITION OF U.S. HOUSEHOLDS: 1960 TO 2000



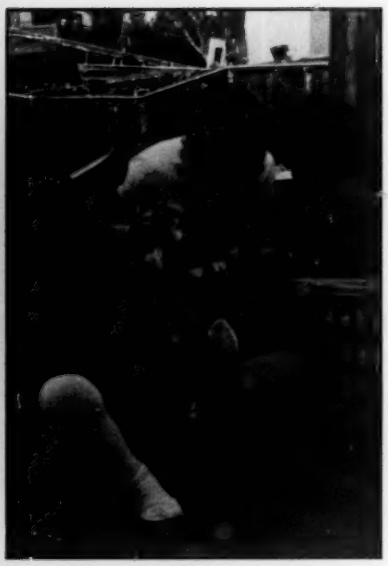
SOURCE: U.S. Bureau of the Census.

couples and single mothers. Continued economic pressures and changing life-style patterns have heightened the problems of working parents, and will intensify the debate over family/work issues in the years ahead.

The interaction between changing age structure and changing household and family patterns will influence the housing and labor markets of the next century in at least four ways:

- We can expect a slower rate of growth in the housing market, at least among first-time home buyers, as the baby bust cohorts replace the baby boom cohort in the housing market. Whether this trend will reduce the demand for housing, thereby lowering prices and closing the

affordability gap, remains to be seen. In the meantime, pressure will build on policy makers to take action on various housing initiatives (rent subsidies, housing vouchers, and tax programs) to reduce the cost of housing for low- and middle-income families.



▲ **The demand for child care services has steadily increased as women have joined the paid labor force.**

- There will be greater segmentation within the housing market, reflecting the more complex and diverse lifestyles of American families. Smaller families, dual-earner couples, and elderly who live alone will place special demands on the nation's housing stock. Meeting the varied needs of distinct population groups will be a major challenge for the housing industry in the years ahead.

- The growing number of working parents will demand more flexibility at the work place. Many businesses and corporations already are instituting flexible work schedules, part-time jobs, and shared job arrangements that enable employees to fulfill their family obligations.

- Employers also will face increasing pressure to adjust their personnel policies and benefit programs to reflect changing family patterns. The growing concern over child care, elder care, and parental leave will continue well into next century as the middle-aged baby boom cohort copes with the responsibilities of rearing their children *and* caring for their aging parents.

Changing Racial and Ethnic Composition

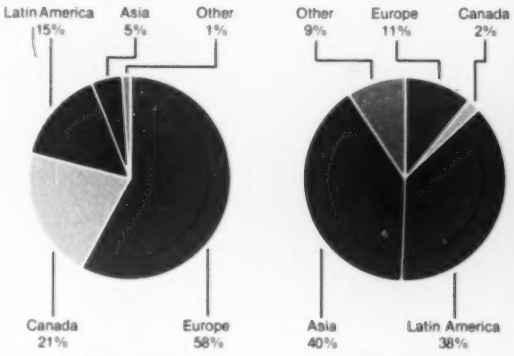
Racial and ethnic minorities are fast becoming a larger share of the U.S. population. By 2000, nearly one-third of all school age children will be from minority populations—a situation that presents a major challenge to our school systems. Already in Los Angeles, only 17 percent of the public school children are non-Hispanic whites, and some 80 different languages are spoken throughout the school system.

While blacks are still the dominant minority group in the U.S., representing about 60 percent

of all minority people, Hispanics are the fastest growing segment of the minority population. Heavy immigration from Latin America and relatively high birth rates have contributed to the rapid growth. Asians represent approximately 10 percent of all U.S. minorities, but their numbers are expected to grow.

Today, minorities account for about 20 percent of the U.S. population. This proportion will rise to almost one-third by 2030, with black and Hispanic groups about equal in size. The changing racial and ethnic composition of the U.S. can already be seen in many local jurisdictions. In Detroit, Atlanta, Baltimore, and New Orleans, for example, blacks comprise a majority of the population. Hispanics are the dominant population group in cities such as El Paso, San Antonio, and Miami. If current trends hold, by 2010 non-Hispanic whites will no longer hold a state-wide majority in California and Texas.

Figure 3.
IMMIGRANTS ADMITTED TO THE U.S. BY REGION OF BIRTH



SOURCE: U.S. Immigration and Naturalization Service.

Two demographic forces — immigration from other countries and fertility rates at home — account for this change. The U.S. has long been regarded as "a nation of immigrants" — a place where people of different nationalities, creeds, and cultural backgrounds have come together and prospered. From the early 1800s to the mid-1960s, the vast majority of immigrants were of white, European stock. Today, Europeans account for only 11 percent of those immigrating to the U.S. (see figure 3). Thirty-eight percent of legal immigrants come from Latin America and the Caribbean and 40 percent from Asia.

Like immigrant groups of the past, the new arrivals tend to settle in specific locations. Over 70 percent of all recent immigrants can be found in just six states: California, New York, Texas, Florida, New Jersey, and Illinois. And even within these states, immigrants tend to concentrate in the major metropolitan areas of Los Angeles, New York, Houston, Miami, and Chicago.

These states and metropolitan areas face particularly acute problems in absorbing new immigrants into the local economy. Some labor economists and policy experts worry that this influx of new arrivals will displace American-born workers from unskilled and low-paying jobs. But so far, research on this point provides mixed evidence of this occurring. The impact of immigration on local economies appears to be highly variable, depending on the economic and social characteristics of the particular immigrant group and on the structure of the host community.

While some policy experts will urge restricting the entry of immigrants to prevent them from competing with native-born workers, others will call for increased immigration of persons with specific labor market skills that are in short supply. Either strategy would alter the current immigration policies that primarily emphasize family reunification and humanitarian criteria over the job skills of applicants.

In addition to migration, fertility rates also affect the racial and ethnic composition of the U.S. Birth rates vary widely among racial and ethnic groups. Since 1972, the non-Hispanic white population has registered below replacement fertility rates, whereas the birth rates of many minority groups have stayed above replacement level. (Demographically, *replacement fertility* is the point at which each generation has only enough children to "replace" itself in the population.) However, considerable variation in fertility exists even within racial or ethnic groups. Among Hispanics, for example, Mexican-American women and women from South and Central America have relatively high levels of fertility, whereas the fertility rates of Cuban women are quite low – indeed, below replacement level. Asians, as a group, also have very low fertility rates, but newer refugee groups, such as Vietnamese and Laotians, bear children at rates that are well above the U.S. average.

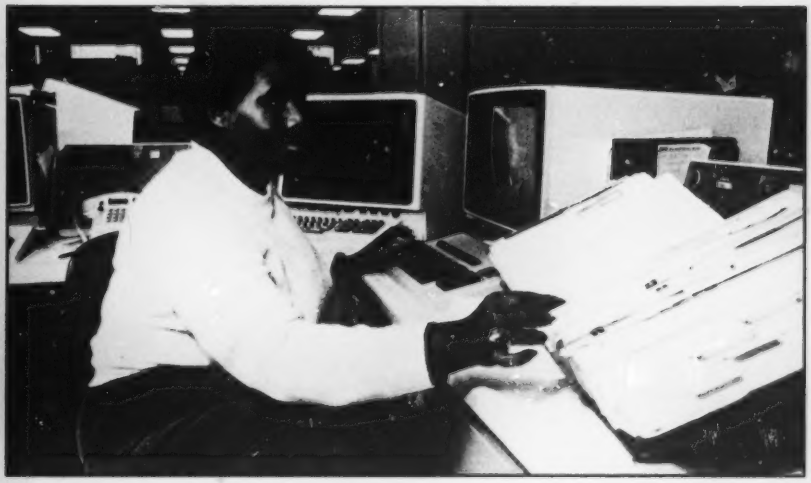
Statistics show considerable socioeconomic differences among minority groups. The typical Hispanic and black family in 1987 had income levels substantially below the U.S. median income of $30,850. Median family income for blacks was $18,100, while Hispanic families averaged $20,300. In contrast, the typical Asian family, with the exception of families from Southeast Asia, reported income at or above the national norm. The percentage of Hispanic and black families in poverty was about two and one-half times the national average. Yet, in spite of these income disparities, the number of middle class black and Hispanic families is growing.

In part, income differences reflect differences in educational achievement. Asian Americans are far more likely than any other group (including non-Hispanic whites) to complete college. This high level of academic achievement has enabled many Asian Americans to advance economically by obtaining professional and managerial positions. What concerns some analysts is that a two-tiered economy may be developing – where large numbers of disadvantaged blacks and Hispanics compete on the lower tier for low-paying service jobs, while on the upper tier, better-educated Asians compete with other middle- and upper-

income minorities and whites for the high-paying, high tech, professional jobs of the future.

The changing racial and ethnic composition of the U.S. will put increasing pressure on many of the basic institutions of our society and challenge our fundamental beliefs in inclusion, acculturation, and nondiscrimination. The most visible changes should occur in five areas:

- School systems will face the challenge of educating a more diverse population in which many students enter the school system lacking basic English language and learning skills.



▲ **Acquiring high tech skills will help minorities compete successfully in the job market of the 21st century.**

- States and municipalities will need to find ways of absorbing immigrant groups into their local economies. Public officials will face continuing concern over the effects of these new arrivals on the types and availability of jobs, on wage rates, and on social service needs.

- The court system will be asked to clarify or redefine such public policy areas as affirmative action and minority set-asides, as some segments of the minority population begin to compete more effectively within the exisiting economic system.

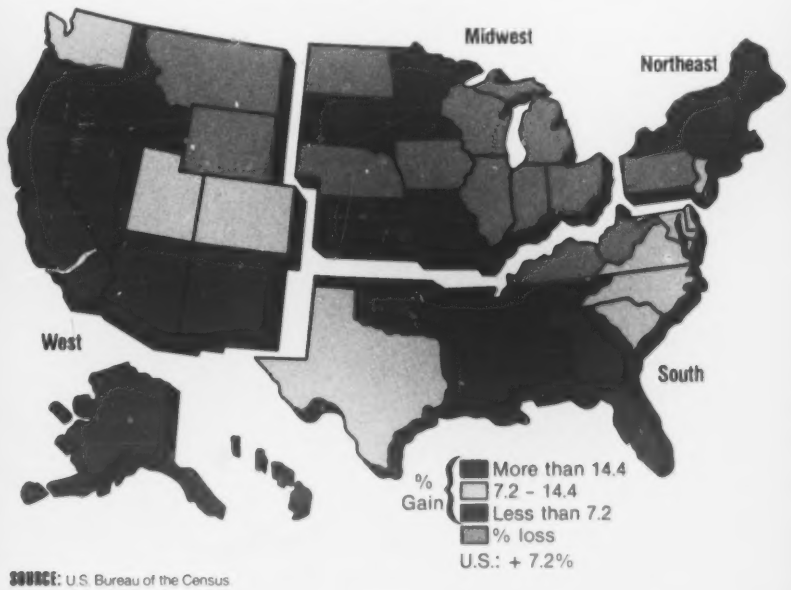
- Changing racial and ethnic patterns will noticeably affect political parties and the voting electorate. As minority populations become more active in the political process, they are likely to press for greater representation within all levels of government and within political party structures.

- Immigration policies will continue to be debated as American labor force needs and international events change over time. As in the past, the debate will focus on what criteria should be used for accepting new immigrants; the impact of illegal immigration on the economy; and the process by which new immigrants adjust to American lifestyles and become productive members of society.

Changing Residential Patterns

Each year about one in five Americans changes residence. Because the birth rate in most states is low, these residential moves, along with immigration from abroad, account for much of the population growth (or decline) of states and local areas. Internal migration is a significant factor in determining the relative size and structure of labor markets, housing needs, tax bases, and service requirements of communities throughout the country.

Figure 4.
PROJECTED CHANGE IN STATE POPULATIONS: 1990 TO 2000



SOURCE: U.S. Bureau of the Census

For nearly three decades, two trends have been apparent: first, sustained migration from the northern states to the sunbelt region of the country, and second, movement away from the older central cities to the suburban fringes of major metropolitan areas. Although migration to the South has slowed in recent years, migration to the West remains high. Suburban migration increased during the 1980s.

Until the mid-1970s, states in the Northeast and Midwest accounted for more than half of the U.S. population. Now, the demographic balance has tipped to southern and western states. According to the latest U.S. Census Bureau projections, between 1990 and 2000, nine states (eight of them in the South or West) are expected to grow twice as fast as the nation as a whole, while 13 states, mainly in the midwestern farm belt, will lose population during

the 1990s (see figure 4). Projections show that 60 percent of all U.S. residents will live in the South and the West by 2010.

California will remain the most populous state as the nation enters into the 21st century, but Texas will surpass New York for the number two spot by the early 1990s. Florida will remain the fourth-largest state, but by 2000 Illinois will replace Pennsylvania for fifth place. Wyoming, Vermont, and North Dakota will be the least populous states in the Union.

State and regional population shifts will change the apportionment of seats in the U.S. House of Representatives. As the population shifts to the sunbelt region of the country, states in the South and West will gain additional representation at the expense of states in the Northeast and Midwest. Thirty Congressional seats could be affected by this regional change. California, Florida, and Texas are likely to gain the most seats, while New York, Pennsylvania, and Ohio may experience the biggest losses (see state data table p. 26).

New patterns of metropolitan growth also are emerging. Although the 1970s brought some growth to rural areas, that trend has ended. Most nonmetropolitan areas again face out-migration and a deteriorating economic base. The central areas of older cities also are declining. Between 1970 and 1986, the share of the population living in the 25 largest U.S. cities fell from 15 to 13 percent. Now, we see the rapid growth of dynamic new *outer cities*—employment and residential centers on the suburban fringes of major metropolitan areas. These new growth areas are attracting a significant number of young families, in part because of lower housing prices. Although some minority families have moved to suburban locations, most remain in older city neighborhoods.

The growth of suburban and exurban areas is spawning new public and private sector initiatives to tackle the difficult and interrelated problems of land use, economic development, transportation, service needs, and environmental preservation. States and municipalities are seeking new ways to address issues such as traffic congestion, affordable housing, water supply, waste management, the building and maintenance of public infrastructure, and the coordination of residential and commercial development. Many of these issues overlap traditional jurisdictional boundaries of cities, counties, and states, so that tax bases, planning structures, and decision-making processes are fragmented.

Most new jobs are now located in suburban areas, and commuting from suburb to suburb has become far more common than commuting from suburbs to the central city. Yet typically, urban mass transportation systems have been designed to link only the downtown area with a handful of suburban locations. Inter-suburban transportation typically relies on interstate highway systems and secondary roads which were not designed for heavy commuter traffic. For the new outer cities and suburbs to

overcome commuter gridlock, there will have to be much more intensive and coordinated efforts by city, suburban, county, and even state jurisdictions than has been achieved in the past.

Changing residential patterns will play an increasingly important role in shaping not only our future political structures but also the governance and management of the public sector. Specifically, we can expect that:

- The sunbelt region of the country will continue to gain political clout as people continue to relocate to this area.

▲ Traffic congestion and aging infrastructures are two critical problems facing many city and suburban areas.

- The political strength of suburban areas and newly emerging urban areas will grow at the expense of older cities and rural areas.
- Changing residential patterns will challenge the ability of state and local governments to provide and maintain essential public services and infrastructure systems. The size and composition of local communities will affect not only the demand for public services but also the tax base for financing services.
- Regional advisory groups or governing bodies will become more prominent as problems associated with economic development and resource use cut across traditional political and jurisdictional boundaries. However, addressing these issues in a coordinated fashion may require a painful realignment of traditional lines of authority, funding arrangements, and mechanisms for accountability.

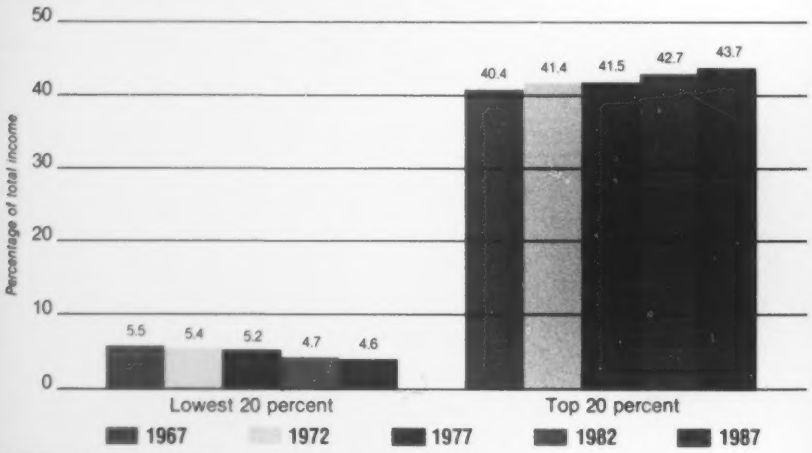
Poverty and Wealth

Poverty remains an entrenched problem despite considerable effort to alleviate and eradicate it. It will pose one of the most difficult policy challenges of the 21st century. Some analysts worry that income and wealth are becoming more concentrated within a small segment of society, and see a widening gap between the rich and the poor. Others see significant growth in the U.S. economy and offer evidence that poverty has declined. In part, because there is no general agreement on the most appropriate way to measure economic well-being, each side can point to some evidence to support its claim.

Official federal poverty statistics show that, over the past 30 years, the proportion of people living in poverty has declined. In 1960, 22 percent of all Americans lived in poverty; in 1987, only 13.5 percent were classified as poor. Poverty rates dropped significantly during the 1960s and then remained in the 11 to 13 percent range during the 1970s. The rates increased again during the early 1980s, but have returned now to levels somewhat above the rates of the late 1970s.

What has changed most in the past 30 years is the demographic composition of the poor. Whereas elderly persons once had the highest rates of poverty (one in three elderly was classified as poor in 1959), now persons living in female-headed households and persons living alone (many of them elderly) are at greatest risk of being poor. Today, only 12 percent of all elderly persons are regarded as poor, but 20 percent of all children live in poverty. Shifting demographic patterns, although not the cause of poverty, have clearly affected the structural framework of poverty. Indeed, one study has estimated that if the age, race, and sex

Figure 5.
SHARE OF INCOME GOING TO TOP AND BOTTOM 20 PERCENT OF FAMILIES



SOURCE: U.S. Bureau of the Census

composition of households in 1980 had remained as they were in 1950, the 1980 poverty rate would have been reduced by 23 percent.

Statistics also show a greater concentration of income among the wealthiest segments of society. Between 1967 and 1987, families in the top 20 percent of the income distribution accounted for a growing share of all income, while families at the bottom 20 percent of the income scale lost ground (see figure 5). Upper income families received 44 percent of all income in 1987, while lower income families got less than 5 percent, according to government surveys. Creeping income disparities give rise to questions about the continuing vitality of the American middle-class. Is the middle-class family waning as a social institution? Will future generations of young Americans be able to enjoy the same standards of living that their parents

enjoyed? Once again, evidence on this point is mixed, but the questions themselves suggest a nagging uneasiness about the quality of life in the years ahead.

Over the past few years, many policy makers have focused their attention on the emerging *underclass* of persons trapped at the bottom of the socioeconomic ladder. Definitions of the underclass vary, but the concept usually refers to persons who are persistently poor and living in deteriorating urban neighborhoods. In addition to these criteria, some analysts also define the underclass to be persons who engage in dysfunctional or antisocial behaviors, such as teenage pregnancy, dropping out of school, criminal activity, substance abuse, welfare dependency, or chronic unemployment.

Most researchers agree that the size of the urban underclass is relatively small – perhaps only 7 percent of the entire poverty population, according to one estimate. But as a group, the underclass seems to be growing more rapidly than the poverty population as a whole. Blacks comprise 70 percent of the underclass population. However, black people who live in urban underclass neighborhoods represent only a small share (perhaps 15 percent) of all black people in poverty.

What these data suggest is that most of the poverty population, including blacks who are poor, do not live in urban ghettos. Indeed, the poverty rates of Stewart County, Georgia, Tallahatchie County, Mississippi, and Hidalgo County, Texas are considerably higher than the rates of poverty in Newark, New Jersey or Detroit, Michigan. Poverty in America reaches beyond the central cities to medium- and small-sized communities, as well as to rural areas.

In many ways the most troublesome aspect of poverty, both now and in the future, is that socioeconomic mobility seems to be increasingly difficult for those on the edge of society. Obtaining a good education or marketable skills, finding transportation to the areas where jobs exist, or even developing relationships with successful role models have all become more problematic for people living in poverty areas. Furthermore, in a political climate of budget deficits and fiscal constraints, it may be difficult to direct public resources to areas of greatest need.

Attacking the problems of poverty and fostering the means for achieving upward mobility will encompass a broad range of policy options, among them:

- Programs that help young children get a better start on life – quality day care and school enrichment programs are essential components of such assistance.

- Programs that help pregnant teens prepare for their role as parents and assist them in completing school.

- Job training and job counseling programs that help unemployed or welfare-dependent people become self-supporting.

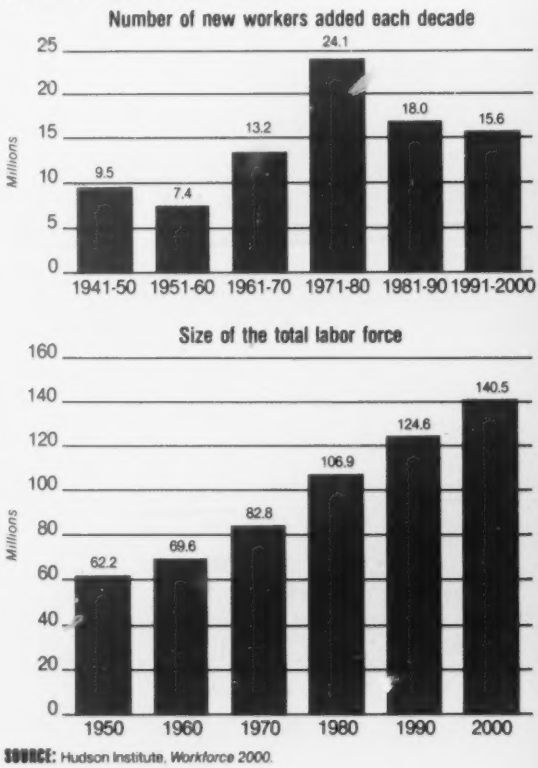
- Programs that help make housing more affordable, not only for first-time home buyers but also for those who rent.

- A reappraisal of tax policies and income-generating plans that will enable government at the federal, state, and local levels to finance programs to assist persons in need.

The Changing Labor Force

Between now and the turn of the century, the *rate* of growth of the U.S. labor force will steadily decline. Yet the *number* of workers in the labor force is projected to be greater than ever before (see figure 6). More than 140 million Americans will be in the work force by 2000, compared with 120 million today. At least in the short-run, concern over a "shortage" of workers is really more an issue of the types of workers that will be in the future labor force rather than the absolute number of workers.

Figure 6.
CHANGING LABOR FORCE PATTERNS



SOURCE: Hudson Institute, *Workforce 2000.*

Over the last two decades, two factors drove the enormous growth in the size of the U.S. labor force: the entry of the baby boom cohort into the work force and the increasing labor force participation of women. Much slower growth lies ahead as the smaller baby bust generation enters its working years and as women's labor force participation rates approach those of men.

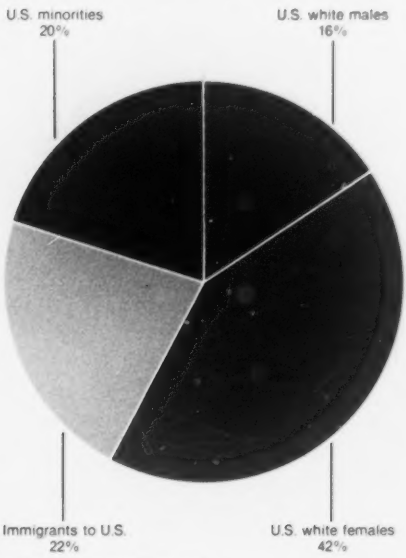
As the baby bust generation enters the work force, there will be fewer young adults to fill entry level positions and an increase in the average age of workers. By 2000 the median age of the work force will rise to almost 40, compared with 35 today.

Women and minorities will account for over 80 percent of all new labor force entrants, and non-Hispanic white males will represent a smaller share of all workers (see figure 7).

The composition of the work force is clearly changing, and so is the nature of the job market. The number of manufacturing jobs in the U.S. is declining, while the number of high tech, service industry positions has increased. Jobs of the future will demand a moderate to high level of education and training, compared with jobs of the past.

What concerns the business community is the growing mismatch that seems to be developing between workers' skills and job requirements. Results from recent surveys suggest that many of our current workers and young students lack not only basic skills in reading, writing, and arithmetic, but also the ability to perform higher order tasks, such as conceptual thinking and problem solving. Work force readiness, more than the actual size of the future labor force, will be the most troubling issue of the 21st century.

Figure 7.
GROWTH OF THE U.S. LABOR FORCE: 1985 TO 2000



SOURCE: Hudson Institute, *Workforce 2000.*

Heightened economic competition from abroad will challenge our own work force to be more productive. To achieve this goal, both the public and private sectors will need to expand their commitment to human resource development and adopt greater flexibility in employment policies. In this regard, educators, policy makers, and employers will have to keep a number of considerations in mind:

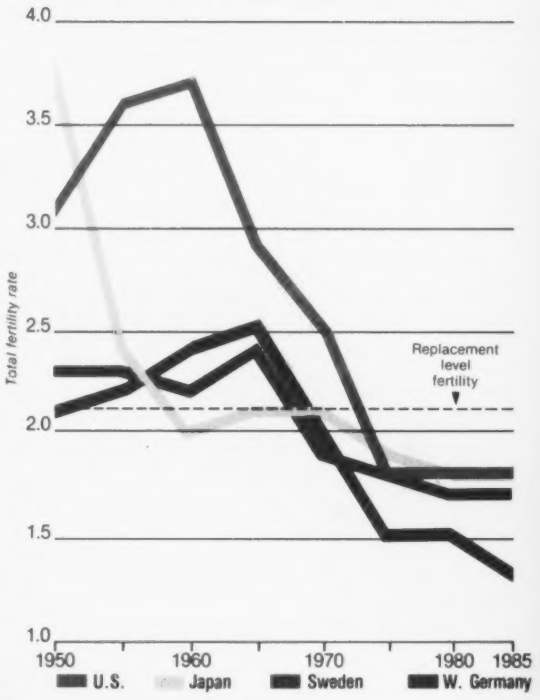
- Educators will have to integrate the need for student mastery of basic learning skills with the educational goals of creativity and cognitive reasoning. All levels of education will face a growing demand for higher performance standards.

- The concept of *life-long education* will gain greater prominence in the work place. Workers of all ages and all levels of employment will need to be retrained several times throughout their working life to keep pace with the changing demands of the future work environment.

- Employers will have to adopt more flexible work policies in order to recruit and retain future workers. With more women and older workers in tomorrow's work force, policies such as child care, parental leave, flexible work hours, work at home, and pension portability, will take on greater significance.

- Debate over U.S. immigration policies will continue as some employers seek to fill gaps in labor force supply with workers from abroad.

Figure 8.
FERTILITY TRENDS IN FOUR INDUSTRIALIZED COUNTRIES



SOURCE: Council of Europe, UN Demographic Yearbook, and U.S. Vital Statistics.

Changing Global Demographics

The concept of a global economy is more than an abstract theory: it touches our everyday lives. The average American home, for example, is likely to contain electrical appliances that were made in Japan, shoes that were made in Spain, or bananas that were grown in Costa Rica; while in Tokyo, Barcelona, or San Jose, one is just as likely to find McDonald hamburgers, IBM computers, or Levi jeans. Changing demographic trends, both in the U.S. and in other countries, as well as trade and monetary policies, will affect our position in the world economy. Tomorrow's global economy will be based on rapidly changing scientific and technological knowledge, more competitive market places, and a growing interdependence among nations.

Industrialized countries around the world are following a similar demographic course. Like the U.S., the countries of Western Europe and Japan are confronted with low birth rates, an increasing number of elderly, changing family and household patterns, and a restructuring of the work force. Indeed, many of these countries are ahead of the U.S. in the demographic aging process. Fertility rates in Sweden, West Germany, and Japan, for example, all reached below replacement level several years before the U.S. (see figure 8). Japan

now reports the highest life expectancy in the world (77.1 years), followed closely by Sweden (76.6 years). By comparison, U.S. life expectancy lags behind at 75.8 years. In many industrialized countries, including the U.S., persons age 65 or older will account for at least 20 percent of the population by 2030.

Because different social and political traditions, as well as demographic trends, have shaped the diverse patterns of social expenditures found in industrialized countries (see table 1), it would be extremely difficult to transfer any particular policy or program directly from one country to another. Nevertheless, there are important lessons to be learned by studying how

Table 1.

GOVERNMENT SPENDING ON SOCIAL PROGRAMS AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT

Country	*1980*	*2000*	*2010*	*2025*
United States	18%	16%	17%	19%
Canada	20	17	17	21
Japan	15	21	26	27
United Kingdom	23	23	24	27
France	31	32	33	35
West Germany	31	33	35	39

**Social programs include pensions, medical care, education, unemployment insurance and other welfare payments.*

SOURCE: International Monetary Fund, *Aging and Social Expenditure in the Major Industrial Countries, 1980–2025*, Occasional Paper No. 47, 1986.

other countries address the social and economic aspects of an aging society. For example, European countries have experimented with a variety of programs designed to address the needs of an aging society, including guest workers, child allowances, and home health care services. Canada's universal health insurance program has succeeded in containing some of its health care costs, and Japan is regarded by many analysts as a model of economic efficiency. Yet U.S. policy makers have paid little attention to how these programs are structured, what they cost, or how well they have achieved their policy objectives. Moreover, such cross-cultural comparisons may be encouraging to those who worry that the anticipated increase in social and financial costs of an aging population could cripple the U.S. economy. Although other countries are spending relatively more than the U.S. on social programs, their economies are still quite competitive in the world markets.

In stark contrast to the slow population growth of the industrialized countries, the populations of less developed countries are rapidly increasing. At current rates of fertility and mortality, the typical developing country is projected to double the size of its population in 30 years. Excluding the unknown effects of AIDS on mortality, the populations of African nations are projected to increase the fastest.

Developing countries currently account for more than three-fourths of the world's population. Rapid population growth will further tip the world demographic scale more heavily towards developing countries. It also could adversely affect the ability of developing countries to sustain economic growth and institutional development. Relative standards of living; incidence of poverty, hunger, and unemployment; and environmental degradation — all could suffer under the continuing pressures of rapid population expansion. But the effects of rapid population growth extend beyond the national borders of developing countries. For one thing, if current ecological predictions prove accurate, deforestation in tropical Third World countries, which is partially driven by population growth, may cause far-reaching global climatic change.

Mexico is expected to add more than 1 million people to its workforce each year during the 1990s.

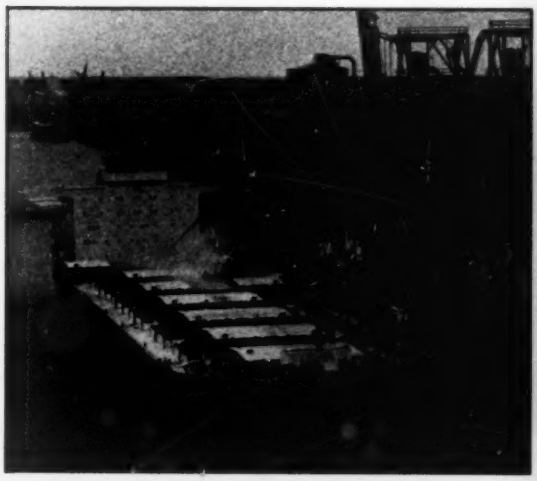
Population growth, along with such factors as economic adversity and political strife, also heightens emigration flows from developing nations. Mexico, for example, is expected to add more than 1 million people to its work force each year during the 1990s. If the Mexican economy is unable to absorb these potential workers, then illegal immigration to the U.S. is likely to rise despite our attempts at legal restraints. Some U.S. businesses are investing in overseas markets, helping to create jobs that might reduce pressures to migrate to the U.S. But critics of this policy argue that such "runaway shops" take jobs away from U.S. workers.

On the other hand, rapidly expanding Third World countries offer U.S. businesses significant opportunities to expand their product markets and create jobs at home. Despite the global economic recession of the early 1980s that forced many developing nations to cut back on their imports, one-third of all U.S. exports in 1986 were purchased by developing countries. This trade was primarily in heavy machinery, chemicals, and agricultural products and represented $213 billion in revenues.

Increasingly, U.S. foreign policy is being made not only by federal authorities, but also by state and local government officials. States and municipalities, as well as the private sector, are becoming increasingly concerned with foreign trade and investment opportunities. In Alaska, for example,

40 percent of all manufacturing jobs in 1986 were export-related. California, Iowa, and Illinois led all states in 1987 in agricultural exports, with a combined export value of more than $7.2 billion. Japan was the top market for U.S. agricultural exports, followed by the Netherlands, Canada, and South Korea. As international trade becomes more competitive, states are aggressively seeking new customers. Thirty-eight states have offices or representatives in Japan to promote trade between Japan and their respective states, and Illinois recently became the first state to establish a trade representative in the Soviet Union.

More than ever, as we approach the 21st century, U.S. prosperity will be intrinsically linked to the social and economic well-being of the world community. Increased competition for product



The U.S. supplied nearly 30 percent of world wheat exports in 1985.

markets, labor markets, and investment markets is likely to intensify as each nation pursues its own economic agenda. Protectionist sentiment is likely to increase. But opportunities for cooperative agreements and joint ventures may be greater than ever before. The demographic trends that lie behind the shift to a global economy provide an important framework for understanding the issues and conflicts involved. Within this scenario, we can expect that:

- Economic and trade policies will alternate between competition and cooperation with other countries of the world. Whether we institute trade barriers or launch joint ventures, we will need to plan long-range strategies for increasing the productivity and financial strength of American enterprise.

- Labor policies will choose among three distinct, but not mutually exclusive, alternatives: importing labor from abroad; training (or retraining) U.S. workers; or exporting jobs to countries with lower labor costs. U.S. policy debates on economic competition and changing labor force needs will hinge on the desirability and consequences of

these options. Different industries or economic sectors will pursue different strategies, as no single policy will fit the circumstances of all.

- In addressing the service and income needs of our elderly population, policy makers will want to take a closer look at the experiences of other industrialized countries.

- Greater emphasis will be placed on the potential environmental impact of foreign assistance programs as they promote modernization and expand economic development in the less developed regions of the world.

- International demographic and economic trends suggest that the U.S. may no longer dominate the world's social, political, and economic order as it once did in the mid-20th century. Instead, U.S. foreign policy of the next century will increasingly have to recognize the need for regional balance, mutual cooperation, and global interdependency. Fostering a spirit of cooperation and reducing world tensions may be the most important leadership role that the U.S. can play in the years ahead.

THE 1990s: A WINDOW OF OPPORTUNITY

The coming decade holds a unique window of opportunity to look ahead and prepare for the issues that are likely to confront us in the 21st century. Clearly the problems that we face are complex and will require thoughtful and imaginative approaches, as well as tough decisions. There will be no simple solutions, no quick fixes, and no easy answers. Yet policy makers and public officials who take up the challenge and address the issues will find ways to untie the gordian knot of competing interests and constrained public resources.

Demographic projections cannot predict the future, but they can provide a reasonable estimate (at least for the near-term) of basic population parameters that are likely to affect policy proposals. Some of the issues that we face offer immediate and short-term windows for action, while others must be addressed over the long-term. A firm grounding in demographic facts will help in assessing the components of the problem and the urgency of policy decisions. For example:

- **The problems of children and youth** should be of immediate concern to the policy-making community. The rates of poverty among children

are high; results of educational test scores are troubling; and far too many youth are dropping out of school, having children of their own, using drugs, and engaging in criminal activities. To be sure, not all of today's youth face such a bleak scenario. However, as a society we need to address the problems that threaten to leave a significant portion of tomorrow's work force ill-prepared for the demands and responsibilities of life in the 21st century.

- **The problems of middle-aged adults** encompass a broad spectrum of work and family issues. Many individuals in today's work force are struggling to fulfill both work and family obligations, and at least for the immediate future, this scenario seems unlikely to change. As a society, we want to support strong family ties. Indeed, given our currently low birth rates, some analysts argue that we also need to promote family formation. But at the same time, labor force projections suggest that the future supply of labor will depend more than ever on women in the work place. If we are to have strong families *and* an ample work force, then we will have to begin developing policies that encourage both.

- **The problems of the elderly,** although not an immediate crisis, have important long-range implications for society. The growth of the elderly population will slow during the 1990s, only to increase rapidly after 2011 when the baby boom cohort begins to reach retirement age. Because of its size, the baby boom generation has always put a tremendous strain on society's resources. This will be no less true in the 21st century. The potential need of tomorrow's elderly for health care, housing, and retirement income could strain both public and private resources unless we begin to recognize the potential magnitude of the problems and establish adequate policies for handling them. While some policy makers might be tempted to defer action on this seemingly far-off problem, we need to prepare for this demographic inevitability.

Anticipating the future will be a key component of policy making in the 1990s. We cannot limit our sights to next quarter's profit statement, next year's budget, or the next election cycle. The deeply rooted and intransigent nature of the problems that we face will require long-range investments. We cannot hope to address them through quick-fix solutions. If we begin now, the policies that we make today can help to shape the world of the 21st century.

BACKGROUND READINGS

Cherlin, Andrew J., ed., *The Changing American Family and Public Policy* (Washington, DC: The Urban Institute Press, 1988).

Easterlin, Richard A., *Birth and Fortune* (Chicago: University of Chicago Press, 1987).

Employee Benefit Research Institute, *Business, Work, and Benefits: Adjusting to Change* (Washington, DC: EBRI, 1988).

Levy, Frank, *Dollars and Dreams: The Changing American Income Distribution* (New York: Russell Sage Foundation, 1987).

Litan, Robert E., Robert Z. Lawrence and Charles L. Schultze, eds., *American Living Standards: Threats and Challenges* (Washington, DC: The Brookings Institution, 1988).

Menken, Jane, ed., *World Population and U.S. Policy* (New York: W.W. Norton & Company, 1986).

Murray, Charles, *Losing Ground: American Social Policy, 1950-1980* (New York: Basic Books, 1984).

Sawhill, Isabel V., "Poverty in the U.S.: Why Is It So Persistent?" *Journal of Economic Literature,* Vol. XXVI (September 1988).

Wilson, William Julius, *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy* (Chicago: University of Chicago Press, 1987).

STATE DATA TABLE

	TOTAL POPULATION				AGE GROUPS	
	1988 (in 1000s)	2010 (in 1000s)	% POPULATION CHANGE 1988-2010	RANKING OF STATE BY POPULATION 1988/2010	% CHILDREN (age 0-14) 1988/2010	% ELDERLY (age 65+) 1988/2010
United States	245,807	282,055	15		22/18	12/14
Alabama	4,102	4,809	12	22/21	22/19	12/14
Alaska	524	785	46	49/46	28/23	3/5
Arizona	3,489	5,319	52	24/18	23/19	12/16
Arkansas	2,395	2,624	10	33/31	23/18	14/17
California	28,314	37,347	32	1/1	22/19	11/12
Colorado	3,301	4,098	24	26/25	22/18	9/12
Connecticut	3,233	3,532	9	26/27	19/16	13/15
Delaware	660	790	20	47/45	21/18	11/14
District of Columbia	617	672	9	NA	18/13	12/13
Florida	12,335	17,530	42	4/4	19/15	18/21
Georgia	6,342	9,045	43	11/9	23/19	10/12
Hawaii	1,088	1,569	42	39/37	23/16	10/14
Idaho	1,003	1,079	8	42/43	26/21	11/13
Illinois	11,614	11,486	– 1	6/5	22/19	12/13
Indiana	5,558	5,409	– 3	14/17	22/19	12/14
Iowa	2,934	2,382	– 16	29/33	22/18	15/16
Kansas	2,495	2,584	3	32/32	22/19	13/15
Kentucky	3,727	3,710	0	23/26	22/18	12/14
Louisiana	4,408	4,545	3	20/23	25/20	10/13
Maine	1,305	1,308	0	38/41	21/18	13/14
Maryland	4,822	5,598	23	19/14	20/18	11/13
Massachusetts	5,889	6,255	6	13/13	18/16	14/14
Michigan	9,240	9,067	– 2	8/8	22/19	11/13
Minnesota	4,307	4,579	6	21/22	22/19	12/14
Mississippi	2,630	3,028	16	31/28	25/20	12/14
Missouri	5,141	5,521	7	15/15	21/18	14/15
Montana	805	794	– 1	44/44	24/19	12/14
Nebraska	1,602	1,529	– 5	36/38	22/19	14/15
Nevada	1,054	1,484	41	41/39	21/16	10/12
New Hampshire	1,095	1,455	34	40/40	21/18	11/12
New Jersey	7,721	8,980	16	9/10	19/18	13/14
New Mexico	1,507	2,248	49	37/34	25/22	10/11
New York	17,909	18,139	1	2/3	20/17	13/14
North Carolina	6,489	8,154	26	10/11	21/17	12/15
North Dakota	667	611	– 8	48/48	24/19	13/14
Ohio	10,955	10,397	– 4	7/7	22/19	12/14
Oklahoma	3,242	3,511	8	27/28	23/19	12/14
Oregon	2,757	2,991	9	30/30	21/18	13/14
Pennsylvania	12,081	11,134	– 7	5/6	19/16	15/16
Rhode Island	980	1,086	9	43/42	19/17	15/14
South Carolina	3,470	4,255	21	25/24	23/18	11/13
South Dakota	713	722	1	46/47	23/21	14/14
Tennessee	4,986	5,509	12	16/16	21/17	12/15
Texas	16,841	22,291	32	3/2	25/20	10/12
Utah	1,690	2,171	28	35/35	32/29	8/9
Vermont	537	608	9	49/49	21/18	12/13
Virginia	6,015	7,410	23	12/12	20/17	10/13
Washington	4,648	5,282	14	18/19	21/17	12/13
West Virginia	1,878	1,817	– 14	34/36	21/17	14/16
Wisconsin	4,855	4,713	– 3	17/20	22/18	13/15
Wyoming	479	487	2	50/50	26/21	8/10

NA – NOT APPLICABLE

* – LESS THAN 0.5 PERCENT

SOURCES:

U.S. total, children, elderly, and black populations – U.S. Bureau of the Census, P25-#1017, and news release CB89-47.
Hispanic population – U.S. Bureau of the Census, P20-#431, and P25-#1019.
Immigrants – U.S. Immigration and Naturalization Service, *1987 Yearbook*.
Female labor force participation – U.S. Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment, 1988*.
Per capita income – U.S. Bureau of Economic Analysis, news release BEA88-37.
Seats in U.S. House of Representatives – special tabulations prepared by Population Reference Bureau.

RACE/ETHNIC GROUPS			ECONOMIC MEASURES		POLITICAL MEASURES		
% BLACK 1988/1989	% HISPANIC 1988/1988	IMMIGRANTS FROM ABROAD 1983-1987 (in 1000s)	% WOMEN IN LABOR FORCE 1988	PER CAPITA INCOME 1987	SEATS IN U.S. HOUSE OF REPS. 1989	PROJECTED CHANGE IN # OF SEATS BY 2001	
12/12	6/8	2,808	57	$15,481	435	0	U.S.
26/26	1/1	9	51	11,940	7	0	AL
3/3	2/2	5	64	18,230	1	0	AK
3/3	16/16	31	56	14,315	5	+ 3	AZ
16/16	1/1	5	53	11,507	4	0	AR
8/8	19/24	760	57	17,821	45	+ 9	CA
4/4	12/12	25	62	15,584	6	0	CO
7/8	4/5	36	60	21,266	6	0	CT
16/18	2/2	3	62	16,696	1	0	DE
71/69	3/4	13	67	20,457	NA	NA	DC
14/14	9/11	200	55	15,584	19	+ 6	FL
27/27	1/1	29	60	14,300	10	+ 3	GA
2/2	7/7	39	60	15,679	2	0	HI
/	4/4	3	57	11,868	2	0	ID
15/16	6/7	132	56	16,442	22	− 3	IL
8/8	2/2	12	59	13,914	10	− 1	IN
1/2	1/1	8	62	14,236	6	− 2	IA
5/6	3/3	11	60	15,126	5	− 1	KS
7/7	1/*	7	51	12,059	7	− 1	KY
29/30	2/2	22	50	11,473	8	− 1	LA
/	*/1	4	57	13,954	2	0	ME
23/26	1/2	52	62	18,124	8	+ 1	MD
4/5	2/3	72	60	19,142	11	− 1	MA
13/14	2/2	42	56	15,393	18	− 3	MI
1/1	1/1	27	63	15,927	8	− 1	MN
35/36	1/*	4	51	10,292	5	0	MS
10/11	1/1	15	58	14,687	9	0	MO
/	1/1	2	59	12,347	2	− 1	MT
3/3	2/2	4	61	14,328	3	0	NE
6/7	7/8	13	66	16,366	2	0	NV
*/1	1/1	4	63	17,529	2	0	NH
13/14	7/8	150	65	20,352	14	0	NJ
2/2	37/38	11	54	11,875	3	0	NM
14/16	9/12	529	51	18,004	34	− 5	NY
22/22	1/1	16	60	13,314	11	+ 1	NC
/	*/*	2	60	13,004	1	0	ND
10/11	1/1	33	54	14,612	21	− 4	OH
7/7	2/2	16	55	12,551	6	0	OK
1/2	3/3	21	59	14,041	5	0	OR
9/9	1/1	53	52	15,212	23	− 4	PA
3/4	2/2	14	61	15,555	2	0	RI
30/30	1/1	8	57	12,004	6	0	SC
/	1/*	1	60	12,550	1	0	SD
16/16	1/*	11	54	12,880	9	0	TN
12/12	21/22	217	59	13,866	27	+ 6	TX
1/1	4/4	12	59	11,366	3	0	UT
/	1/1	2	63	14,302	1	0	VT
19/19	1/2	53	61	16,517	10	+ 1	VA
3/2	3/3	50	60	15,599	8	0	WA
3/3	1/*	3	41	11,020	4	− 1	WV
4/5	1/1	16	62	14,742	9	− 1	WI
1/1	5/5	1	60	12,709	1	0	WY

REVIEW PANEL

Andrew J. Cherlin
Professor
Department of Sociology
The Johns Hopkins University

Richard A. Easterlin
Professor
Department of Economics
University of Southern California

Thomas Espenshade
Professor of Sociology
Office of Population Research
Princeton University

Reynolds Farley
Professor of Sociology
Population Studies Center
University of Michigan

Peter A. Morrison
Director
Population Research Center
The RAND Corporation

Samuel H. Preston
Director
Population Studies Center
University of Pennsylvania

Michael Teitelbaum
Project Officer
Alfred P. Sloan Foundation

Barbara Boyle Torrey
Chief
Center for International Research
U.S. Bureau of the Census

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NOTE

Some charts and graphs we color-coded in the original document. While it has not been possible to reproduce these items in color, their equivalent values on the black-and-white scale are often distinct enough to convey the same information as the original colors.

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America in the 21st Century

A GLOBAL PERSPECTIVE

A publication of the Population Reference Bureau, Inc.

PRB

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The report series is under the direction of Carol J. De Vita, Senior Research Associate, and William P. O'Hare, Director of Policy Studies, Population Reference Bureau.

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America in the 21st Century
A Global Perspective
October, 1989
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America in the 21st Century

A GLOBAL PERSPECTIVE

In a number of ways, the 21st century has already arrived – at least in demographic terms. The U.S. labor force of the next century is already born (although not all in the United States); next century's first high-school graduating class (as well as its dropouts) are already in grade school; and the elderly of the 21st century are already well down paths that will determine their financial and health care needs for old age.

During the past quarter-century, the U.S. has experienced unprecedented change in its social, economic, and demographic structures, and further changes are inevitably on their way. Indeed, the impact that changing social and demographic factors have exerted on our individual lives and on society as a whole has been profound. These forces will continue to play a major role in shaping policies and programs in both the public and private sectors in the years ahead. Gaining a better understanding of the scope and depth of demographic changes, their interrelationships, and the effects that they have on social and economic institutions will help us deal more effectively with these forces now and in the next century.

This report is part of a series of publications on "America in the 21st Century" prepared by the Population Reference Bureau under a grant from the Ford Foundation. The series highlights the importance of demographic change in shaping our local communities and world environment as we enter the 21st century. This report looks at demographic trends that are occurring around the world and provides a framework for understanding the newly emerging global economy, the movement for sustainable development, and other changes that are creating a realignment of international interests. Other reports in the series include:

- A Demographic Overview
- Human Resource Development
- Social and Economic Support Systems
- Infrastructure Needs
- Environmental Concerns
- Governance and Politics

Together, these reports cover a broad range of issues and interrelated topics. They are designed to inform and challenge our thinking about the future and the kind of world we are likely to face as we enter the 21st century.

THE U.S. IN A CHANGING WORLD

Major demographic changes are reshaping the world in which we live. World population has more than doubled since 1950 and now stands at 5.2 billion. Within the next 30 to 40 years, 3 billion more people will be added to the current total. Almost all of this projected population increase will occur in developing countries, and most of it in cities.

While the U.S. is adapting to social, economic, and demographic changes that are affecting life at home, it is important to recognize the magnitude – and quite different nature – of demographic change elsewhere on the world horizon. Increased economic competition and the globalization of world markets are linking the U.S. – and making it more vulnerable – to events that occur beyond our national borders. It is important for U.S. policy makers to recognize this changing global reality, and that demographic changes are a central part of this global context.

Expanded trade in goods and services, larger and more complex exchanges of labor and capital, and increased communication with other nations are but a few of the visible signs of our shrinking world. Investment decisions in Tokyo boardrooms affect job opportunities in Tennessee. Debt restructuring agreements in Mexico City affect the solvency of pension funds in Miami and the cost of home mortgages in Minneapolis.

Several important policy areas clearly reflect the growing interdependence among nations. Some are directly linked to demographic change; in others, demographic trends play an indirect, but important, role by shaping the social and economic context in which public policy decisions and actions are made.

- **Labor Markets.** The demand for specific types of skills is changing rapidly in both developed and developing countries. Whereas the U.S. and Western Europe once were the leading employers in manufacturing, most of the new jobs in that sector are being created in newly industrialized countries, such as Korea, Taiwan, and Singapore.

- **Product Markets.** Just as domestic demographic shifts are affecting the demand for goods and services in the U.S., demographic changes in other parts of the world will reshape the international product markets of the 21st century. Despite a global recession during the early 1980s that forced many developing nations to cut back on imports, one-third of all U.S. exports – from Iowa soybeans to Boeing airliners – are purchased by Third World countries. With increased globalization, we need to be more aware of how international demographic trends affect the demand for U.S. products.

- **Financial Markets.** Advances in telecommunications and information processing have accelerated the globalization of financial markets. Events that occur in seemingly faraway places are increasingly likely to reverberate on the balance sheets of U.S. banks and the other institutions that manage the average American's financial accounts. The cost of a new home, the return on private pension funds, or the interest rates on individual checking or money-market accounts are all subject to rapid change within this new global network.

- **Environmental Degradation.** A growing body of scientific evidence points to the destructive effects that current production and consumption patterns have on the global environment. Policy makers around the world are beginning to recognize the need for coordinated efforts in addressing the problems of air and water pollution, the disposal of toxic wastes, the destruction of forests and wetlands, the erosion and desertification of productive land, as well as, the accumulation of greenhouse gases in the atmosphere. If left unchecked, the loss of such natural resources could undermine the capacity of many countries to support their future populations at a time when they will be substantially larger than they are today.

- **National Security Interests.** The definition of national security interests in terms of cold-war confrontation is giving way to one based on issues such as global environmental degradation, drug trafficking, illegal migration, international terrorism, and the spillover effects of political flare-ups in other countries around the world. Already, there is anticipation of further conflict in the Middle East over water scarcity; debt-ridden Latin American nations face uncertain political futures; and refugees in sub-Saharan Africa, displaced by destruction of crop and rangelands, have contributed to mounting tensions in that region.

Understanding the dynamics of demographic change, and the policy issues that result, can help U.S. policy makers respond more effectively to the challenges that lie ahead.

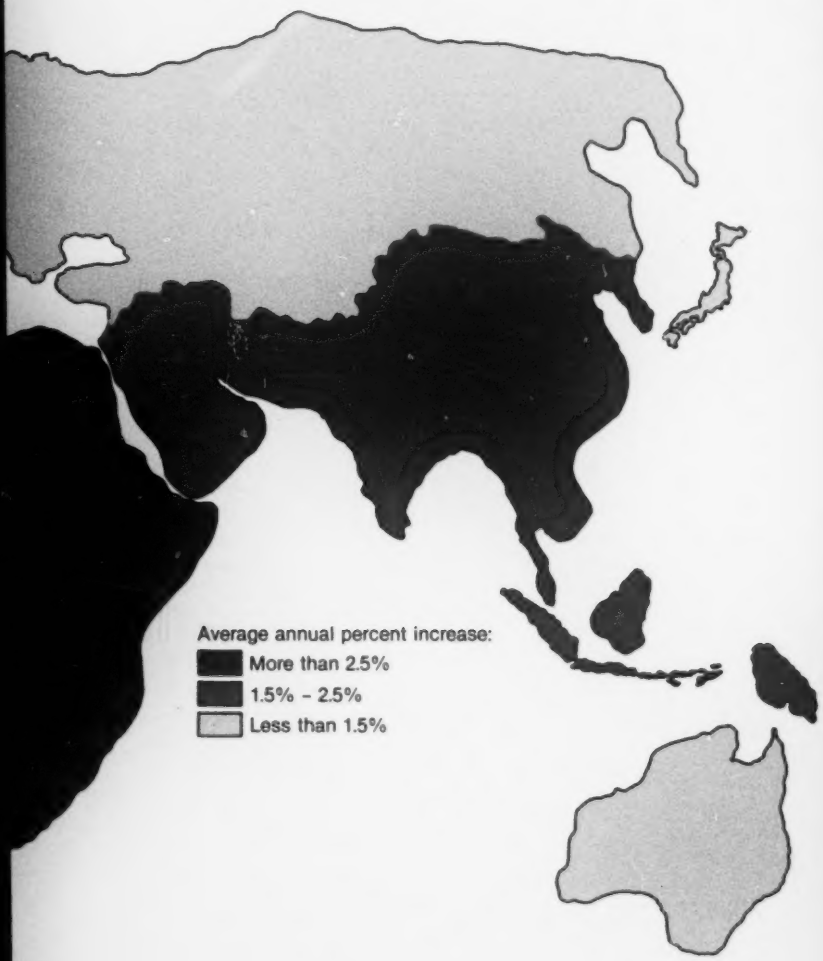
A DEMOGRAPHICALLY DIVIDED WORLD

Mature industrialized countries today include all of Europe, the U.S., Canada, Australia, New Zealand, the Soviet Union, and Japan and currently account for about one-quarter of the world's population. For over 20 years these countries have had slow rates of population growth, and their share of world population is declining. By 2025, these

Figure 1.
WORLD POPULATION GROWTH BY REGION

SOURCE: Population Reference Bureau, *1999 World Data Sheet.*

nations will contain only one-sixth of the world's people. Five out of every six people will inhabit the currently developing countries, whose population growth rates are comparatively high. Demographically, the world is divided between the slow growth in the industrialized countries and rapid growth in the developing countries (see figure 1).



Where countries fall in this division depends, in large part, on their place in the "demographic transition" process. Basically, the transition is a shift from demographic patterns characterized by high birth rates and high death rates to patterns of low birth rates and low death rates. Before and after the transition, populations grow very slowly because the effects of fertility and mortality tend to cancel each other out. This has been the case for most of human history. But during the demographic transition, populations increase more quickly because mortality rates generally decline earlier than birth rates.

Industrialized countries had completed the demographic transition before World War II although some, including the U.S., experienced a subsequent baby boom. Birth rates in industrialized countries appear to have stabilized now at relatively low levels. In contrast, the demographic transitions of developing countries were just beginning in the post-war period. Advances in disease prevention lowered mortality rates far more rapidly than in earlier decades, so that developing countries experienced much more rapid growth in their populations than industrialized countries faced at the start of their transitions.

▲ By 2030, one-fifth of the population of industrialized countries will be age 85 or older.

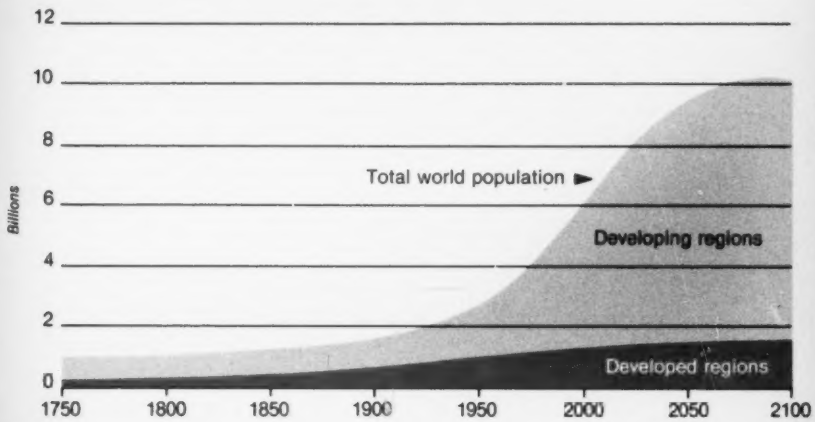
Post-transition industrialized countries share a common set of demographic features:

- **Their populations are increasing slowly.** Low birth rates and high life expectancy combine to produce growth rates of about 0.6 percent a year. Twenty-eight of 33 industrialized countries have current fertility rates below replacement levels of 2.1 children per woman. If these rates were to persist through the end of the current generation's reproductive lives, future generations would be smaller in size. The exceptions include Ireland, Poland, Romania, Albania, and the U.S.S.R. All industrialized countries report life expectancy at 70 years or older, except the U.S.S.R. at 69 years.

- **Socialist countries and those with market economies face similar long-term demographic trends.** In all industrialized countries, the rates of marriage have declined, divorce is more common, and the average size of families is much smaller. Some socialist countries have tried to increase their birth rates through the use of family allowances, housing policies, or restrictions on abortion, but these measures have resulted at best in only short-term and modest increases in their birth rates. The Soviet Union's somewhat higher fertility rate of 2.5 children per woman is caused primarily by the high birth rates of its Muslim population and other minority groups. The birth rates in the Russian and Baltic republics are below replacement levels. Indeed, demographic differences within the Soviet Union are a cause of political tension that could be exacerbated as the differences widen.

- **All industrialized countries are experiencing an "aging" of their populations.** Given the generally low birth rates and high life expectancy of industrialized countries, the relative share of the older population is increasing. Japan, once the country with the youngest age structure among industrialized nations, now is aging the most rapidly. In most industrialized countries, including the U.S., persons age 65 or older will account for at least 20 percent of the population by 2030, and the share of people who are very old (85 and older) will be significantly larger as well. This changing age structure, away from the young and toward older age groups, will affect both the labor markets and consumption patterns of all industrialized countries around the world. Most striking will be increased expenditures on health care and medical services.

Figure 2.
POPULATION TRENDS IN DEVELOPED AND DEVELOPING COUNTRIES: 1750–2100



SOURCE: Population Reference Bureau.

Eighty-five percent of world population growth between 1950 and 1987 (2.1 billion people) took place in developing countries. Another 3 billion people are projected to be added to world population by the year 2020 — 93 percent of whom will live in the developing world (see figure 2). Although a number of developing countries have succeeded in reducing their high population growth rates, the number of births will remain high well into the next century. A major reason is that over the

next 10 years, 240 million couples in developing countries will enter their childbearing years. Even if each of them opts for a smaller family, the sheer numbers passing through the childbearing years will produce large numbers of offspring. Continued efforts to expand family planning will be required during the 1990s just to keep up with this demographic momentum.

▲ In the future, Third World cities will be even more crowded as population growth is projected to be concentrated in urban areas.

Whereas the similarities found among industrialized countries eclipse their differences, developing countries are marked by wide demographic diversity. Some are just starting their demographic transitions; others are well along in the process. By 2025, the demographic and socioeconomic characteristics of a number of currently developing countries will be similar to those of industrialized countries today. The demographic profile of any particular developing country may differ markedly from patterns prevalent in its region. Nevertheless, three common characteristics are now in evidence:

- **Population growth rates in developing countries generally exceed 2 percent per year.** Much of Asia and Latin America began to undergo the demographic transition process in the 1950s and 1960s; they now experience growth rates of approximately 2 percent per year.

Africa, on the other hand, lags behind and is still growing very rapidly at approximately 3 percent per year. Fertility rates tend to be lower in Latin America (about 3.6 births per woman) than in most of Asia (4.3 births per woman, excluding China, with 2.4). If China is included in the Asian measure, it drops to 3.6. Africa reports the highest fertility rates at 6.3 children per woman.

- **Roughly 40 percent of the population of developing countries is under age 15.** In industrialized countries, by contrast, the proportion is 22 percent. The young age structure of developing countries is the result of continuing high birth rates and reductions in infant mortality. Life expectancy has improved markedly in developing countries. In Latin America it averages around 66 years; in Asia (including China) about 62 years, and in Africa about 51 years. But the high birth rates of these regions keep their populations relatively young.

- **Future population increases in developing countries will be concentrated mostly in the cities.** Historically, developing countries have been more rural than urban in character. But since the 1950s, urban areas have outgrown rural areas. In Latin America, for example, the size of the rural population is actually declining in spite of substantial overall population increase. Even in Asian and African countries that today are mostly rural, most of the *future* growth will occur in cities.

The reasons for the historic shift to urban areas are complex. Most industrialized countries experienced the shift when their economies changed from agricultural production to manufacturing and services. Developing countries are now experiencing similar shifts. Added to this are traditionally inequitable land tenure systems and mechanization of agricultural production that reduces the need for manual labor, as well as policies that favor urban areas in terms of amenities, public services, and employment opportunities. Rural-urban migration is generally concentrated among young adults who seek jobs and living standards not available in home areas.

Of the 20 most populous metropolitan areas in 1950, only 9 were in developing countries. New York and Shanghai were the leading metropolises, followed by London and Tokyo (see table 1). By the year 2000, 17 of the top 20 metropolitan areas are projected to be in developing countries. In these projections, Mexico City and São Paulo move up to the top two positions, followed by Tokyo, Calcutta, and Bombay. New York drops to sixth place. Cities such as London, Paris, Milan, Chicago, Philadelphia,

Table 1.

WORLD'S TWENTY LARGEST METROPOLITAN AREAS: 1950 AND 2000

1950		RANK	2000	
City	*Population (in millions)*		*City*	*Population (in millions)*
New York	12.4	1	Mexico City	25.8
Shanghai	10.4	2	São Paulo	24.0
London	10.3	3	Tokyo/Yokohama	20.2
Tokyo/Yokohama	6.7	4	Calcutta	19.5
Beijing	6.7	5	Bombay	16.0
Paris	5.5	6	New York	15.8
Tianjin	5.4	7	Shanghai	14.3
Buenos Aires	5.2	8	Seoul	13.8
Chicago	5.0	9	Teheran	13.6
Moscow	4.8	10	Rio de Janeiro	13.3
Calcutta	4.5	11	Jakarta	13.3
Los Angeles	4.1	12	New Delhi	13.2
Osaka/Kobe	3.8	13	Buenos Aires	13.2
Milan	3.6	14	Karachi	12.0
Cairo/Giza	3.5	15	Beijing	11.2
Rio de Janeiro	3.4	16	Dacca	11.2
Mexico City	3.1	17	Cairo/Giza	11.1
Philadelphia	3.0	18	Manila/Quezon	11.1
Bombay	2.9	19	Los Angeles	11.0
Detroit	2.8	20	Bangkok	10.7

SOURCE: United Nations, *The Prospects of World Urbanization Revised, as of 1984-85*, Population Studies, No. 101 (New York: 1987).

and Detroit are no longer on the list, displaced by Seoul, Karachi, Teheran, Manila, and Bangkok. Whereas five U.S. cities were among the world's most populous metropolitan areas in 1950, only two (New York and Los Angeles) remain on the list by the year 2000.

While the world of the 21st century may become more demographically diverse and divided, economic and technological changes are pulling countries closer together. New dependencies, as well as greater competition, may result from these changes. Some industrialized countries with their aging populations and older work forces are turning to developing countries as a source of young labor recruits; jobs are also being exported to developing countries. Only a small fraction of the world's population ever migrates from their country of birth, though more might do so if immigration laws were less restrictive.

Developing countries, with their burgeoning new megacities are potential markets for new information, technologies, and development assistance from the more advanced countries of the world. Yet, the enormous concentration of people in cities of over 10 million places immense strains on the financial and physical resources of developing nations. Adapting to these demographic shifts may be one of the most pressing problems of the 21st century.

ADJUSTING TO CHANGE

During the coming decade, the U.S. will need to adjust not only to demographic changes at home, but also to global demographic shifts. Global demographic changes may impinge most directly on national policies, but they also will be felt at the state and local levels. The interdependent nature of world demographic change, as discussed below, will be felt in at least five important policy areas: labor markets, international trade, foreign investments, the environment, and national security interests.

Labor Markets

The low fertility and rising average ages of populations in industrialized countries are being reflected in their labor forces. Most industrialized countries are experiencing a decline in the relative share of younger, entry-level workers and increases in the proportion of older, more experienced ones. By 2020 half of all workers in Europe and the U.S. will be age 40 or over. In Japan, the median age of workers is already approaching 41, and is projected to rise to 43.5 by 2020. These patterns contrast with the very youthful profile of labor forces in developing countries, which have been swollen by the waves of young people now reaching labor force entry ages.

Added to these demographic shifts are worldwide shifts in the demand for labor resulting from changing technology, new trade patterns, and shifts in the mix of manufacturing, service, and agricultural activities in individual countries. The result is an increased tendency toward globalization in labor markets. Two manifestations of this are the new patterns of international labor migration that have emerged in recent decades and the exporting of certain types of manufacturing and service jobs from high to low labor cost countries.

Importing Labor. The U.S., traditionally a "nation of immigrants," has admitted more legal immigrants than any other country in the world. UN statistics show over 14 million foreign-born people living in the U.S. in the early 1980s. India had the next highest number of foreign-born residents (8 million people, many from other South Asian countries), followed by France, with 6 million. Other countries, such as Japan and Iceland, have very few foreign-born residents. Immigration plays almost no role in the Soviet Union and is very restricted in Japan, though in recent years Japanese authorities have been troubled by increasing numbers of "tourists" from Southeast Asia who overstay their visas and work in low-wage service jobs.

Some analysts argue that immigration policies should be used to augment labor supply, and certain countries (e.g., Australia and Canada) have designed their immigration regulations to help meet labor needs. During the more economically expansive 1960s and 1970s, many European countries encouraged the immigration of foreign workers to their countries under *guest worker* programs. Now, amid changing economic conditions, concerns about providing social benefits to immigrants and their dependents, and xenophobic reactions among natives, these same countries are seeking to tighten their immigration laws. Some are even offering incentives to guest workers who have stayed to return to their countries of origin.

Recent U.S. immigration experience reveals both benefits and costs of using immigration to remedy labor shortages. New immigrants to the U.S. are typically young adults, often drawn from the more educated and economically mobile segments of their native countries. They generally add skills and productivity to the U.S. labor force. But educational attainment levels vary significantly among immigrants by country of origin. Data from the 1980 Census show that 88 percent of immigrants over age 25 from Africa who arrived in the U.S. between 1970 and 1980 had completed high school, compared to only 17 percent of Mexican immigrants. In the U.S. native population, 68 percent of those over age 25 have a high school-level education. Current U.S. immigration policy does little to match immigrants' educational characteristics to the needs of the U.S. labor market, though proposed modifications in immigration law could change that.

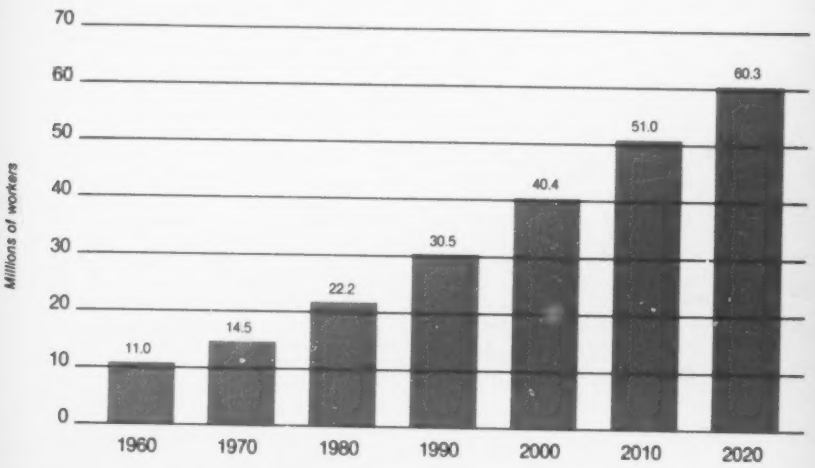
There also are hidden costs to the expansion of immigrant workers. New arrivals may require assistance to learn English, to find housing or health care, or to avoid mistreatment by employers. Some people fear that a large influx of new immigrants may take jobs away from native-born workers, depress wages, and create political and social tensions. The children of immigrants often place increased demands on local school systems. Already in Los Angeles, over 80 different languages are spoken throughout the public school system.

These pressures are highly concentrated within very specific locations. Over 70 percent of all recent immigrants to the U.S. can be found in just six states: California, New York, Texas, Florida, New Jersey, and Illinois. And even within these states immigrants tend to cluster in the major metropolitan areas of Los Angeles, New York, Houston, Miami, and Chicago. About 35 percent of all applicants for amnesty under the new immigration reform law were from the Los Angeles-Long Beach area.

While increasing immigration may be viewed as one way to address labor shortages, it is not clear whether immigrants are settling in the states and communities that face the greatest unmet labor needs. The distribution of potential workers and

the distribution of unfilled jobs may pose a problem at least in the short run. Studies show, nonetheless, that immigrants tend to be quite resourceful in finding employment opportunities and contributing to the economy. In the long run, however, today's young immigrants will eventually become a part of tomorrow's elderly population in need of health care, retirement income, and other forms of assistance.

Figure 3.
LABOR FORCE GROWTH IN MEXICO: 1960–2020



SOURCE: International Labour Office.

Immigration issues extend beyond purely economic considerations and into such realms as humanitarian assistance, public education, social services, and national and local politics. Public officials at all levels of government will be challenged to reconcile the multiple and sometimes conflicting interests that are affected by immigration and immigration policy.

Exporting Jobs. Employment is a critical issue for developing countries. In Mexico alone, economists estimate that one million new jobs will be needed each year between now and the end of the century to absorb the wave of young people entering the Mexican labor market (see figure 3). The projected annual number of new entrants to Mexico's labor force during the 1990s will be only slightly lower than what is projected for the U.S., but in an economy whose gross domestic product in 1986 was only 3 percent of the United States' GDP. Numbers aside, the ultimate measure of success will be if the newly created jobs are able to increase economic productivity and raise the living standards of people in developing areas. Unless these goals

are met, the young people of developing nations will continue to look elsewhere for better opportunities for themselves and their families.

One strategy that tries to address the employment problem in developing areas is the establishment of export-oriented assembly plants in special export processing zones, such as the *maquiladoras* in northern Mexico. Most Mexican *maquiladoras* are owned by U.S. corporations, although an increasing number are owned by investors from other nations, notably Japan and Korea. These plants provide employment opportunities for Mexican workers and may help to stem the loss of jobs in the U.S. factories that supply the *maquiladoras* with component parts to assemble. Most *maquiladoras* are engaged in the assembly of items such as furniture, appliances and electronic equipment; sewing of footwear and apparels; and in mixing and packaging pharmaceuticals. While the *maquiladoras* stimulate the Mexican economy and reduce the incentives for illegal migration to the U.S., they also represent direct competition to U.S. firms engaged in these manufacturing activities and thus remain controversial.

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▲ Telecommunications and advanced technologies are significantly changing how we communicate and conduct business, as this advertisement from *The New York Times* indicates.

U.S. corporations, conscious of growing labor and production costs, have turned to the populations of developing countries as a source of low-wage labor. Since the 1970s, American automobile manufacturers have found it more economical to purchase some of their assembly parts from places like Mexico and Korea rather than produce them entirely in U.S. plants. Now, with advances in satellites and other communications technology, service jobs are also moving overseas. American Airlines, for example, set up a subsidiary in 1984 called Caribbean Data Services that uses employees in Barbados and the Dominican Republic to perform routine data processing work. In 1989 Texas Instruments, Inc. established a software development facility in Bangalore, India, which is linked by satellite to its headquarters in Dallas. Although the "global office" is only in its infancy, the concept has significant implications for U.S. jobs and workers in the 21st century.

International Trade

The globalization of labor reflects larger forces that are restructuring production and trade in the world economy. New technologies and changing economic relationships are primarily responsible for these shifts, but underlying demographic patterns will condition their impact on individual localities. Newly industrializing countries, such as Mexico, South Korea, Malaysia, and Thailand, are emerging

as leaders in steel production, electronics, shipbuilding, and automaking – industries that were once dominated by the mature industrial economies. Services, rather than goods production, now account for an increasing share of the economy of mature industrialized countries.

Many observers believe, however, that the world economy stands at the threshold of a new kind of industrial revolution made possible by technological advances in microelectronics, robotics, and advanced materials. These advances in technology might bring a resurgence of manufacturing back to the U.S. and other industrialized nations. Communications technology is transforming patterns of industrial organization; so are "customized" manufacturing techniques that make it economical to produce items in small lots rather than the large numbers required to achieve economies of scale using assembly lines. Such made-to-order manufacturing requires increasingly sophisticated information systems, including demographic data bases, for marketing, inventory control, and distribution. The Japanese have pioneered these new approaches, and other industrialized countries are likely to follow their lead.

The challenge for developing and developed countries is to recognize the local significance of demographic change, to identify new niches in the emerging global economy, and to invest in the human and physical capital needed to respond. The stakes are significant. Nearly one of every eight U.S. manufacturing jobs in 1986 was export-related. States in the West tend to have a somewhat higher proportion of these jobs. Alaska, for example, had 40 percent of its manufacturing work related to exports, primarily because of its fishery industries. Twenty-one percent of manufacturing jobs in the state of Washington were export-related due to its production of aircraft and related parts. Arizona reported 19 percent of its manufacturing jobs as export-related, primarily because of the production of electronic equipment and components. Over half (55 percent) of all U.S. exports in 1987 were from the sale of machinery (including electronics and computers), transportation equipment, and chemicals.

Compared to the rest of the world, the U.S. is endowed with high-quality agricultural land relative to the size of its population. For states in the Midwest and other agricultural regions, the fortunes of local economies are closely tied to the export of agricultural commodities. In 1987, for example, the U.S. exported nearly 25 percent of its corn crop;

over 40 percent of its soybean and cotton crops; and about 75 percent of its wheat crop. In total, the export of agricultural goods represented about 12 percent of all U.S. exports.

While technological developments and economic policies are central to concerns about U.S. competitiveness in the 21st century, we also need to remember that the process involves people – people who are consumers as well as producers of the goods and services that are traded. Relative numbers, age structure, educational attainment, income distribution, and other characteristics influence productivity and consumption patterns throughout the global economy. Global demographic changes, whether the aging of industrialized countries or the rapid expansion of cities in developing countries, take on local significance through the trade process.

Foreign Investment

The trade deficit and a growing foreign debt are the most visible symptoms of our international economic problems. The two are related. Until the 1980s, the merchandise trade deficit was offset by a positive balance of trade in services, much of which was interest earned from U.S. foreign investment. With increased deficit spending and foreign borrowing during the 1980s, other countries, most notably Japan, have increased their investments in the U.S. considerably. Foreign investors, attracted to the U.S. because of higher interest rates, political stability, and a falling U.S. dollar, acquired substantial U.S. assets. Data on foreign investments in the U.S., however, are very imprecise and scattered among dozens of agencies. The U.S. Department of Commerce estimates that direct foreign investment in the U.S. amounted to more than $329 billion in 1988. The prime investor was Great Britain, accounting for $102 billion or 31 percent of all investments. Japan was second with $53 billion (see figure 4).

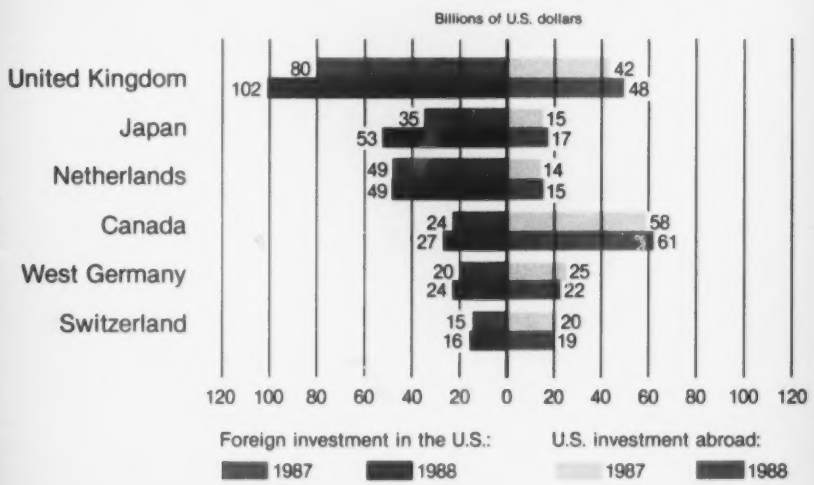
Japanese investments in the U.S. have grown remarkably over the past several years. Since 1980, Japanese investments in the U.S. have increased nearly ten-fold. Some analysts predict that this trend will slow as Japan begins to consume more and save less of its national income, in part to support an increasingly aging population. But the relationship between social support for the elderly and a nation's economic well-being is not clearly established. Both Britain and West Germany, for example, have proportionately more elderly and spend a greater share of their national income on programs for the elderly than does Japan. Yet, Britain's investments in the U.S. increased by 600

percent and West Germany's by 200 percent between 1980 and 1988.

While there is considerable concern by some policy makers that America is being "sold off" to foreign interests, foreign investments are both welcomed in many quarters and actively recruited. By 1987, 40 states had established overseas trade offices (or trade representatives) to promote investment and trade opportunities in their local communities. State and local governments frequently find themselves in bidding wars to entice foreign investors to their areas. Tax incentives, job training assistance, subsidies for new roads, sewers, and other infrastructure services, as well as outright grants, are used to attract foreign investors.

Figure 4.

TOP FOREIGN INVESTORS IN U.S. AND U.S. INVESTMENTS ABROAD: 1987 AND 1988



SOURCE: U.S. Bureau of Economic Analysis.

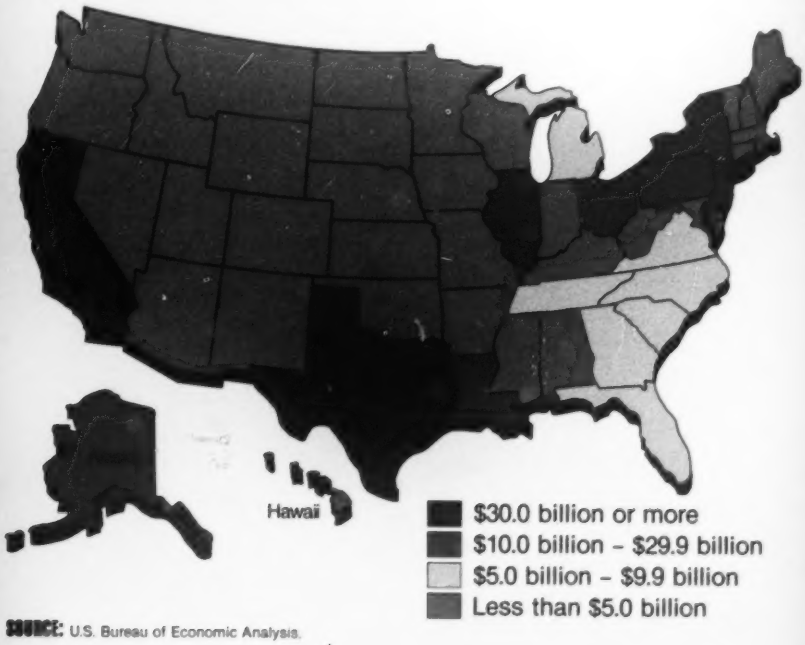
Critics worry that these policies will produce only short-term results. Once the initial incentive expires, they argue, foreign investors may close their operations and move elsewhere. Proponents counter that foreign investment helps to spur the local economy by creating jobs and is an inevitable part of the long-term globalization of the world economy. Only 10 percent of all foreign investments in 1988, they note, went toward real estate holdings rather than other types of investments that generate jobs. To date, Texas and California are far ahead of other states in receiving foreign investments (see figure 5), but the trend touches every region of the country.

The distribution of U.S. investments abroad, on the other hand, mirrors to a large extent, foreign investments in the U.S. Seventy-five percent of U.S. investments go to industrialized countries. Canada received the bulk of these investments in 1988, followed by Britain, West Germany, Switzerland, Japan, and the Netherlands. Latin America and the

Caribbean nations received 64 percent of all investments made in developing countries. The largest share went to Brazil ($12 billion), followed by Mexico and Panama with $6 billion each.

Increased foreign holdings of U.S. assets as well as continued U.S. investments overseas involve long-term expectations about economic performance, as well as underlying demographic, social, and political relationships between debtor and creditor nations over time. The U.S. will be repaying its

Figure 5.
FOREIGN INVESTMENT IN THE U.S.: 1987



SOURCE: U.S. Bureau of Economic Analysis.

foreign creditors well into the 21st century, by which time it will also have to provide for its aging baby boom generation. The combination of debt-repayment and support of a large elderly population, some analysts fear, might prove particularly burdensome for the U.S. economy. On the other hand, if today's debt-ridden developing countries are able to slow their population growth rates, raise living standards, and stimulate economic growth, they may be better able to pay back their obligations in the century ahead. The demographic structure of debtor and creditor nations provides an important framework for analyzing potentially competing demands on resources and financial obligations.

The Environment

Worldwide, there is growing concern about the degradation of environmental resources and the adverse economic and health effects that are likely to result from this process. Perils such as acid rain, emissions of greenhouse gases into the atmosphere, dumping of toxic wastes, and the deforestation and desertification of productive land are critical concerns in the U.S. and around the world. Environmental degradation is undermining the capacity of many developing countries to expand food production to meet the demand of rapidly growing populations. But the effects of environmental problems do not stop at national boundaries. They have global ramifications.

While population growth generally aggravates the destructive process, it is not the only factor involved. Human numbers and human behavior, along with institutional factors, shape and exacerbate environmental outcomes. On a per capita basis, consumption patterns of industrialized countries are far more damaging to the environment than those of developing countries. Industrialized nations consume more fossil fuels and non-biodegradable plastics than do the developing countries, and generally produce more waste.

To take one example, the U.S. accounts for about 23 percent of the 5.5 billion tons of carbon emissions that annually come from the use of fossil fuels, even though it makes up only 5 percent of world population. These emissions are thought to be a major cause of the global warming process. Japan, Western Europe, and the Soviet Union account for another 35 percent of these emissions. On a per capita basis, industrialized countries annually dump roughly 3 tons of carbon into the atmosphere compared with 0.4 tons for developing countries.

Individually and collectively, poor people around the world aspire to improve their standard of living, and they pattern their behaviors after people who are better off than they are. Energy use is closely associated with consumption levels. Even if developing countries succeed in raising their living standards on an energy-efficient basis (which will be difficult for them because they may not have the capital to develop or buy the needed technology), the large projected increases in their populations could swamp such efforts. Assuming that the projected 7 billion people who will inhabit developing countries in 2025 were to consume just half of the per capita consumption levels of today's more energy-efficient industrialized nations, the annual amount of carbon emissions generated by developing countries would result in a seven-fold increase from their current levels. Emissions associated with deforestation, livestock, and other sources would further add to the carbon emissions.

Recognition and response to environmental issues is occurring in both developed and developing countries, though the stakes are different depending on whether they are seen from the

perspective of rich or poor nations and their peoples. The industrialized countries are more able to afford environmentally sound consumption and production practices than the poorer developing countries. However, because short-run costs of conservation are often high, there is considerable resistance to change in many quarters.

For leaders of poor countries whose current consumption levels are close to basic subsistence, diverting resources to environmental protection is not a politically attractive proposition. They argue that industrialized nations did little to preserve the environment when they modernized their economies, and developing countries should not be saddled with additional burdens now that it is their turn to modernize. This may help to explain the guarded or even hostile reaction of developing countries to suggestions from industrialized countries that they adopt stricter environmental controls. One example is the recent protests by Brazil over pressure from environmental groups to institute environmental practices that would preserve the Amazon rain forest.

▲ **Environmental perils do not respect national boundaries.**

While understandable, such responses are shortsighted because environmentally unsound consumption and production practices undermine the long-term sustainability of the development process. Such practices have real costs – whether they are paid now or later. The risk in putting things off until later is that the depletion of a country's environmental capital may go beyond the point at which that capital can be renewed, and "later" may turn out to be "too late." Short-term increases in population may be accommodated, perhaps even with a somewhat higher living standard, but at the price of undermining the capacity to support even larger numbers later on.

National Security Interests

Since the end of World War II, U.S. national security interests have been defined primarily in terms of maintaining its superpower relationship with the Soviet Union and the containment of Soviet influence in Europe and the developing countries. Enormous amounts of money and political energy have been spent on military manpower and hardware in pursuit of these objectives. As we approach the end of the century, there is growing recognition that national security interests need to be redefined. Agreements on nuclear and conventional armaments reflect this shift.

Just how these interests will be redrawn is still very much in debate in both the U.S. and the Soviet Union. Both are feeling the pinch of continued massive military spending, and each has pressing problems demanding national attention: for example, the U.S., in coping with drug problems, and the Soviets, in attempting to revitalize their economy. There is also recognition that future military flare-ups are more likely to result from spillovers of regional conflicts in developing countries ignited by political, economic, and environmental breakdowns. Increased tensions over

control of scarce resources such as water and arable land needed to feed poor, rapidly growing populations are already evident in the Middle East and other developing areas. Stealth bombers and "starwars" defense systems will be of little avail under these conditions.

Global and national demographic shifts impinge on the debate. By the 21st century, superpowers will represent a smaller share of total

▲ **Recruitment of U.S. military personnel may be strained in the coming century by declining birth rates and competing job opportunities.**

world population than they did in the mid-20th century (the combined populations of the U.S. and U.S.S.R. were 13 percent of the world total in 1950 and are projected to drop to 8 percent by 2025). Their low fertility and aging populations will make it more difficult to recruit and maintain military personnel. Developing countries, in contrast, are endowed with the youthful populations that typically fill the front lines of rebellions and armed conflicts. They are also experiencing the social and economic tensions, often exacerbated by rapid population growth, that lead to such conflicts.

It is, of course, impossible to predict the outcome of the debate about superpower security interests or the eventuality of military conflicts in developing countries, but these issues have important implications for the economies of states and localities in the U.S. The size and scope of defense expenditures have considerable impact on local communities, especially those that contain a large military presence or engage in substantial amounts of defense contracting work. In 1988, defense dollars were heavily concentrated in California, Virginia, Texas, Florida, New York, and Massachusetts.

As old definitions of national security give way to newer conceptualizations of the issue, U.S. policy makers will be faced with difficult and complex choices on how to balance local economic interests with national security and global concerns. Defining the problem may be as much a part of the future debates as discussing the specific terms of the issue. Trade-offs between the costs of developing sophisticated weaponry systems and the support of programs that might alleviate the underlying social and economic tensions that produce conflict are likely to lie at the heart of the discussions. But as telecommunications, advanced technologies, and economic dependencies bring the world closer together, the need for pursuing policies that recognize the new global ties and establish greater cooperation between nations would seem the most prudent course.

CHALLENGES FOR THE 1990s

While pundits may debate whether demography is destiny, long-term demographic shifts alter how nations relate to each other, economically and politically. The size, composition, and dynamics of each nation's population affect the size and quality of its work force, the demand for goods and services, its capacity to save and invest, as well as its environmental integrity and national security.

Significant demographic changes are occurring both in industrialized countries and developing countries around the world. While global demographics cannot be controlled by any nation, they cannot be ignored. The design and implementation of local and national programs that might have worked well in an insulated world of the past now have to adapt to a complex and interdependent world structure. Otherwise, opportunities will be lost or unforeseen negative outcomes generated.

The task for the 1990s will be to recognize and prepare to accommodate the changes ahead in the 21st century. There will be challenges as well as opportunities in at least four policy areas:

- **An Internationalized Economy.** The global marketplace is growing and changing. New technologies and organizational structures are being devised to meet the challenges. The flurry of mergers, acquisitions, and most importantly, joint ventures, of today's business climate exemplifies the movement of large corporations beyond their own national borders and their attempts to position themselves in a world marketplace. American firms are expanding their European operations, in part to avoid possible protectionist sanctions after the 1992 economic unification of the Common Market countries. Japan has built automobile plants in the U.S., again, partially to circumvent trade barriers. In the future, it may be more difficult to disentangle

local and national affiliations from international market loyalties.

The political, economic, and demographic divisions that characterize the late 20th century may be diminished in the 21st century as population growth slows in developing countries and political restructuring continues in Eastern Europe, the U.S.S.R., and China. The expanding city populations of the Third World represent enormous potential markets for consumer goods and services if trade channels can be kept open and the U.S. is competitive in new market niches. In addition, the need to balance improved living standards for larger, developing-country populations while preserving the environment presents opportunities for U.S. businesses to develop and market new and appropriate technologies for the task. An international economy could very well expand business opportunities rather than restrict them, if we are able to develop innovative and foresighted policies. Large and small businesses, as well as government, workers, and consumers all have a stake in the outcome and need to understand these changes to be able to respond to them.

▲ Japanese cars made in Tennessee and American telephones assembled in Singapore are part of the emerging global economy.

- **The Functioning of Labor Markets.** As the 21st century approaches, a key issue in the globalization of the world economy will be the realignment of jobs and employer/employee relationships. Job obsolescence and job security are already concerns of U.S. and European workers as new technologies and competition from newly industrialized countries reshape labor needs. As corporations expand their operations in other countries, overseas wage and employee benefits arrangements will be carefully scrutinized on grounds of both equity and cost efficiency. Whether this will move U.S. policies in the direction of expanding worker's benefits (as under a European model of greater child-care assistance, paid maternity/paternity leave, and family allowances) or toward erosion in the value of compensation (through lower wages, increased hours, or reduced health and pension coverage) remains to be seen. How business and labor respond to these challenges will shape our competitive position in the global economy and affect the welfare of each American.

- **Education's Role.** All of the trends indicate that the U.S. role in the emerging global economy will be in knowledge-based rather than labor-intensive activities, whether they be information services, high-tech manufacturing, or bioengineering. The challenge is to prepare today's youths, particularly those from

disadvantaged groups who are expected to account for an increasing share of our future work force, for tomorrow's jobs. In spite of the fact that the U.S. has been a leader in educational excellence, it now appears to have fallen well behind other countries. Recent international comparisons show that U.S. students perform less well than their foreign counterparts in basic science and mathematics. Twenty-first century American workers will have to be capable of working with computational and information-management technologies in which U.S. competitiveness is grounded, and they will need language and communication skills to work in the global marketplace.

- **Global Leadership in Development.** While policy makers may fix their attention in the coming decade on the competitive economic position of the U.S. vis-à-vis other industrialized countries, the most dramatic demographic changes will occur in the less developed regions of the world. The populations of these regions are growing more than twice as fast as the U.S. and other industrialized areas. Yet their problems and potentials are often overlooked or treated as separate and unrelated issues when, in fact, the U.S. and other industrialized countries have a vital stake in whether developing countries succeed in coping with their problems. These challenges include dealing with enormous debt burdens, slowing population growth rates, preserving the environment, raising living standards, providing jobs for youth, and managing the rapid growth of the cities.

Through most of this century, the U.S. has seen its national interest served by playing a leadership role in critical global issues. The nature of those issues is changing as we move toward the 21st century, as is our capacity to deal with them. Brute economic and military force are no longer as effective, or affordable, as they were in the cold-war era. New approaches, based on the application of knowledge, the cooperative pursuit of mutual economic interests, and the careful husbandry of the earth's environment and natural resources will be required in the globally interdependent decades that lie ahead.

Global demographic trends are an important piece of the larger fabric of international relations. They shape the economic and policy climate directly and indirectly via channels that are making the world more interdependent: new patterns of the exchange of goods, services and information; movements of workers and jobs across borders; international financial flows; the global environment; and changing national security interests. To adapt to these changing conditions the U.S. needs to understand the internationalization of its economy and labor markets, strengthen its own human resource capacity, and redefine its role as a global leader.

BACKGROUND READINGS

Bell, Daniel, "The World and the United States in 2013," *Daedalus,* Vol. 116, No. 3 (Summer 1987).

Bouvier, Leon and David Simcox, *Many Hands, Few Jobs: Population, Unemployment and Emigration in Mexico and the Caribbean* (Washington, DC: Center for Immigration Studies, 1986).

Brown, Lester R. and Jodi L. Jacobson, *Our Demographically Divided World,* Worldwatch Paper 74 (Washington, DC: Worldwatch Institute, 1986).

Castaneda, Jorge, "Mexico's Coming Challenges," *Foreign Policy* (Fall 1986).

Haub, Carl and Mary Mederios Kent, *1989 World Population Data Sheet* (Washington, DC: Population Reference Bureau, Inc., 1989).

Kennedy, Paul, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Random House, 1987).

Kotler, Philip and Nikhilesh Dholakia, "Ending Global Stagnation: Linking the Fortunes of the Industrial and Developing Countries," *Business in the Contemporary World,* Vol. 1, No. 3 (Spring 1989).

Merrick, Thomas W., "World Population in Transition," *Population Bulletin,* Vol. 41, No. 2 (Washington, DC: Population Reference Bureau, Inc., reprinted 1989).

Sewell, John W., Stuart K. Tucker, et al., *Growth, Exports, and Jobs in a Changing World Economy* (New Brunswick, NJ: Transaction Books, 1988).

Smuckler, Ralph H. and Robert J. Berg with David F. Gordon, *New Challenges, New Opportunities: U.S. Cooperation for International Growth and Development in the 1990s* (East Lansing, MI: Center for Advanced Study of International Development, Michigan State University, August 1988).

Teitelbaum, Michael S. and Jay M. Winter, *The Fear of Population Decline* (New York: Academic Press, 1985).

United Nations, *World Population at the Turn of the Century,* Population Studies No. 111 (New York: United Nations, 1989).

Wattenberg, Ben J., *The Birth Dearth* (New York: Pharos Books, 1987).

World Commission on Environment and Development, *Our Common Future* (Oxford: Oxford University Press, 1987).

STATE DATA TABLE

	TOTAL POPULATION			AGE GROUPS		MIGRATION
	1988 (in 1000s)	2010 (in 1000s)	% POPULATION CHANGE 1988-2010	% CHILDREN (age 0-14) 1988/2010	% ELDERLY (age 65+) 1988/2010	IMMIGRANTS FROM ABROAD 1983-1987 (in 1000s)
United States	245,807	282,055	15	22/18	12/14	2,806
Alabama	4,102	4,609	12	22/19	12/14	9
Alaska	524	765	46	28/23	3/5	5
Arizona	3,489	5,319	52	23/19	12/16	31
Arkansas	2,395	2,624	10	23/18	14/17	5
California	28,314	37,347	32	22/19	11/12	760
Colorado	3,301	4,098	24	22/18	9/12	25
Connecticut	3,233	3,532	9	19/16	13/15	36
Delaware	660	790	20	21/18	11/14	3
District of Columbia	617	672	9	18/13	12/13	13
Florida	12,335	17,530	42	18/15	18/21	200
Georgia	6,342	9,045	43	23/19	10/12	29
Hawaii	1,096	1,559	42	23/16	10/14	39
Idaho	1,003	1,079	8	26/21	11/13	3
Illinois	11,614	11,495	– 1	22/19	12/13	132
Indiana	5,556	5,409	– 3	22/19	12/14	12
Iowa	2,834	2,382	–16	22/18	15/16	8
Kansas	2,495	2,564	3	22/19	13/15	11
Kentucky	3,727	3,710	0	22/18	12/14	7
Louisiana	4,408	4,545	3	25/20	10/13	22
Maine	1,205	1,308	9	21/18	13/14	4
Maryland	4,622	5,688	23	20/18	11/13	52
Massachusetts	5,889	6,255	6	18/16	14/14	72
Michigan	9,240	9,097	– 2	22/19	11/13	42
Minnesota	4,307	4,578	6	22/19	12/14	27
Mississippi	2,620	3,028	16	25/20	12/14	4
Missouri	5,141	5,521	7	21/18	14/15	15
Montana	805	794	– 1	24/19	12/14	2
Nebraska	1,602	1,529	– 5	22/19	14/15	4
Nevada	1,054	1,484	41	21/16	10/12	13
New Hampshire	1,085	1,455	34	21/18	11/12	4
New Jersey	7,721	8,960	16	19/18	13/14	150
New Mexico	1,507	2,248	49	25/22	10/11	11
New York	17,909	18,139	1	20/17	13/14	529
North Carolina	6,489	8,154	26	21/17	12/15	18
North Dakota	667	611	– 8	24/19	13/14	2
Ohio	10,855	10,397	– 4	22/19	12/14	33
Oklahoma	3,242	3,511	8	23/19	12/14	16
Oregon	2,767	2,991	8	21/18	13/14	21
Pennsylvania	12,001	11,134	– 7	19/16	15/16	83
Rhode Island	993	1,085	9	19/17	15/14	14
South Carolina	3,470	4,205	21	23/18	11/13	9
South Dakota	713	722	1	23/21	14/14	1
Tennessee	4,895	5,500	12	21/17	12/15	11
Texas	16,841	22,281	32	25/20	10/12	217
Utah	1,690	2,171	28	32/29	8/9	12
Vermont	557	608	9	21/18	12/13	2
Virginia	6,015	7,410	23	20/17	10/13	83
Washington	4,648	5,262	14	21/17	12/13	90
West Virginia	1,876	1,617	–14	21/17	14/16	3
Wisconsin	4,855	4,713	– 3	22/18	13/15	16
Wyoming	479	487	2	26/21	8/10	1

[a] Total includes some exports that were not allocated to individual states.
[b] '0' indicates no state office or no response to survey.
[c] Includes active duty, reserves and civilian personnel.
[d] Based on contracts over $25,000.

SOURCES:

U.S. total, children and elderly populations – U.S. Bureau of the Census, P25-#1017, and news release CB89-47;
Immigrants – U.S. Immigration and Naturalization Service, *1987 Yearbook*;
Export-Related Jobs – U.S. Bureau of the Census, news release CB89-38;
Agricultural Exports – U.S. Department of Agriculture, Economic Research Service, *Foreign Agricultural Trade of the U.S.*, March/April 1989;
Foreign Investment in United States – U.S. Bureau of Economic Analysis, *Survey of Current Business*, July 1989;
State Overseas Offices – National Governors' Association, International Trade and Foreign Relations, Survey of State Contact Overseas;
Defense Personnel and Expenditures – U.S. Department of Defense, *Atlas/Data Abstract for the United States and Selected Areas*, 1988.

EXPORT MEASURES		INVESTMENT MEASURES		DEFENSE MEASURES			
% MFG JOBS EXPORT-RELATED 1986	AGRICULTURAL EXPORTS 1988 (in millions)	FOREIGN INVESTMENT IN U.S. 1987 (in millions)	STATE OVERSEAS OFFICES[b] 1987	DEFENSE PERSONNEL[c] 1988 (in 1000s)	% DEFENSE PERSONNEL 1988	DEFENSE CONTRACT EXPENDITURES[d] 1988 (in millions)	
13	$35,334[a]	$328,413	127	3,864	2	$125,767	U.S.
10	226	3,883	5	93	2	1,826	AL
40	0	18,390	3	34	2	422	AK
19	304	4,015	3	58	2	2,652	AZ
9	896	1,256	2	37	2	742	AR
15	3,390	42,607	3	467	2	23,458	CA
14	673	4,485	3	73	2	2,891	CO
16	25	2,910	1	28	1	4,911	CT
13	40	3,400	0	15	2	233	DE
7	0	1,503	0	42	7	1,665	DC
11	594	9,484	3	170	1	5,328	FL
8	417	8,879	4	145	2	1,616	GA
3	38	3,203	1	77	7	541	HI
13	506	391	0	15	1	62	ID
13	2,618	12,657	6	116	1	1,500	IL
13	1,362	3,764	6	60	1	1,518	IN
11	2,859	1,671	3	24	1	561	IA
11	2,330	2,308	8	53	2	950	KS
10	719	4,377	2	77	2	397	KY
11	421	14,289	2	66	1	1,439	LA
12	12	1,299	0	27	2	518	ME
12	115	3,112	3	112	2	4,271	MD
16	19	4,967	0	60	1	7,212	MA
13	593	7,561	4	69	1	1,270	MI
15	1,811	4,291	8	37	1	2,083	MN
8	611	2,387	5	52	2	2,422	MS
11	1,097	4,147	3	77	1	5,507	MO
8	432	1,611	1	13	2	80	MT
9	2,118	477	0	30	2	259	NE
13	3	1,590	1	18	2	207	NV
15	0	862	0	13	1	481	NH
12	48	11,168	1	81	1	3,359	NJ
7	59	2,739	0	37	2	663	NM
13	237	22,546	6	136	1	7,706	NY
9	874	9,515	4	145	2	1,241	NC
14	1,023	1,289	1	20	3	117	ND
14	1,112	18,408	4	107	1	5,060	OH
12	507	4,992	3	83	3	541	OK
15	361	1,785	3	24	1	453	OR
13	237	10,712	3	133	1	3,309	PA
12	0	586	2	17	2	429	RI
11	222	6,012	2	96	3	566	SC
8	806	383	0	16	2	54	SD
9	340	5,553	0	56	1	1,207	TN
14	2,248	41,375	4	200	2	9,001	TX
13	65	2,483	3	45	3	870	UT
20	5	377	2	7	1	122	VT
9	223	6,632	4	255	4	10,238	VA
21	814	3,577	1	107	2	2,625	WA
14	6	4,967	0	16	1	218	WV
12	768	2,613	2	38	1	911	WI
7	44	2,903	2	9	2	55	WY

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America in the 21st Century

HUMAN RESOURCE DEVELOPMENT

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America in the 21st Century

HUMAN RESOURCE DEVELOPMENT

Rapidly changing technology and increased foreign competition are redefining the American work place. Demographic changes are altering the size and composition of the work force. Together these trends have fueled public debate over how best to ensure a productive and competitive work force to meet the challenges of the 21st century. Central to these debates is the need for *human resource development* – the need to develop America's human resource potential through education, job training, and employment policies.

While no single factor will determine what life will be like in the 21st century, demographic trends are a fundamental, but sometimes overlooked, force in shaping human resource needs. Indeed, from a demographic perspective, we see that the 21st century has already arrived. The U.S. labor force of the next century is already born (although not all in the United States); next century's first high-school graduating class (as well as its dropouts) are already in grade school; and the elderly of the 21st century (the baby boom generation) are already well down paths that will determine their financial and health-care needs in their oldest years. Gaining a better understanding of the scope and depth of demographic changes, their interrelationships, and the effects that they have on social and economic institutions will help us deal more effectively with these forces now and in the future.

This report is part of a series of publications on "America in the 21st Century" prepared by the Population Reference Bureau under a grant from the Ford Foundation. The series highlights the importance of demographic change in shaping our local communities and world environment as we enter the 21st century. Other reports in the series include:

- A Demographic Overview
- Social and Economic Support Systems
- Infrastructure Needs
- Environmental Concerns
- Governance and Politics
- A Global Perspective

Together, these reports cover a broad range of issues and important public policy topics. They are designed to inform the reader about the interaction between demographic trends and public policy considerations and to challenge our thinking about the kind of world we are likely to face as we enter the 21st century.

PREPARING THE WORK FORCE OF THE FUTURE

Fostering a creative and productive work force has always been an important public policy goal. But the emergence of a highly competitive, knowledge intensive, global economy creates a special urgency for strengthening America's human resource capacities. Throughout the 1980s, numerous indicators showed that the United States' previously unquestioned role as a world economic leader was being challenged. Foreign manufacturers captured a greater share of world markets. The results of international math and science exams showed that U.S. students scored at or near the bottom of those who were tested. High school dropout rates in the U.S. were typically three times higher than in other industrialized countries. And, a higher proportion of U.S. children lived in poverty than children in most other industrialized nations.

Yet despite these difficulties, the U.S. economy has remained strong. The well-educated "baby boom" generation (born between 1946 and 1964) is now entering its most productive work years, and the U.S. record of employment growth has been the best of any major industrialized country in recent years. The task of the 1990s will be to recognize and adapt to the new economic conditions that are shaping world markets and to invest in human resource policies that will enable the U.S. to retain its competitive position.

Myths and misconceptions regarding the nature and extent of these changes abound. While it is impossible to predict the future, demographic projections can provide a reasonable picture of the population parameters that are likely to affect the future. This report explores the changing nature of the work force and its human resource needs. First, it will look at the economic trends that are likely to shape the labor market of the 21st century. Next, it will present demographic projections of the size and composition of the future work force. And finally, it will discuss the human resource policies that will be needed to help guide us toward the 21st century.

THE EMERGING ECONOMY

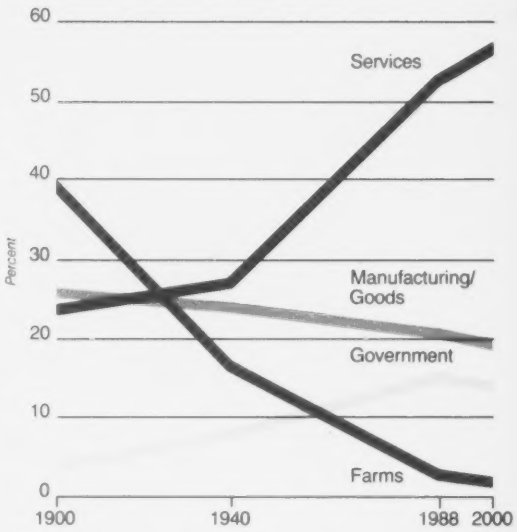
Economic forecasts tend to underscore the fact that the U.S. is evolving towards an information/service-based economy. Nearly all of the new jobs that will be created between now and the turn of the century are expected to be in service industries. Yet in many ways, we already live in the "new" information/service age. Today, more than half of all workers hold service sector jobs (see figure 1).

Indeed, the U.S. began the transition to a service-based economy almost a century ago. Around 1900, employment in agriculture plummeted, and service sector jobs began to increase steadily. Employment in service industries (such as banking, finance, utilities, wholesale and retail trade, education, health, and personal services) surpassed employment in manufacturing and goods-producing industries (such as mining, construction, auto and steel production, and the processing of nondurable goods) during the 1920s.

More than 75 million jobs are now classified as part of the service sector.

But the dominance of the service sector does not imply that the U.S. goods-producing sector has become unimportant to the economy or is headed toward extinction. Whereas employment in the goods-producing sector accounted for one in every four jobs in 1900, it is expected to represent one in every five jobs in 2000. Manufacturing industries are an important source of high-wage employment and account for over half of all U.S. exports. What is more, declines in the manufacturing sector can create significant ripple effects throughout the economy.

Figure 1.
EMPLOYMENT BY SECTOR: 1900 TO 2000



SOURCE: U.S. Bureau of the Census and Bureau of Economic Analysis.

Some analysts forecast a resurgence in U.S. manufacturing in the years ahead. Technological advances in microelectronics, telecommunications, and robotics may pull some manufacturing industries back to U.S. shores. But future employment in the goods-producing sector is likely to call for workers who can operate technologically sophisticated equipment, troubleshoot, and solve problems rather than simply perform repetitive assembly line tasks.

What faces the U.S. now is a changing mix of jobs, greater emphasis on the knowledge and skills of workers, and strong linkages between the U.S. and world economies. To respond to these challenges, many labor economists feel that the U.S. must improve its economic position by:

- increasing productivity;
- educating (or retraining) current and future workers; and
- maintaining a flexible work force.

Productivity in the Work Place

Maintaining America's high standard of living both now and in the future will depend in large part on the growth of economic productivity. Most forecasters believe that productivity (that is, output per worker) must double during the 1990s in order to sustain a moderate level of economic growth. Achieving such increases will present a major challenge to the U.S. economy.

Keeping pace with technological change will be a key factor in improving work place productivity.

Growth in U.S. productivity fell sharply after 1973 and has remained stubbornly low. During the 1950s and 1960s, productivity rates increased by about 1.7 percent per year. Now they rise at roughly 0.8 percent per year. Economic forecasts generally assume that productivity levels will increase by 1.0 to 1.5 percent per year during the 1990s – just under the rates achieved during the 1950s and 1960s. Manufacturing has shown marked improvement in its productivity, rising now at just under 4 percent per year. But most of the overall growth in productivity will need to come from the expanding service sector that in the past decade has risen by just 0.2 percent per year. Other industrialized countries, such as France, Germany, and Japan, also have experienced declines in their productivity growth rates, but the problem appears to be more persistent in the U.S.

Factors behind the productivity slowdown remain largely unexplained. The changing composition of the U.S. labor force in terms of age, sex, education, and experience account for only a small fraction of the slowdown. Declining capital investment and increasing environmental and health regulations also are contributing factors, but do not fully explain the slow growth rates. It is possible that some portion of the slowdown can be attributed to measurement problems, particularly in the service sector industries. But a number of researchers dismiss this idea, arguing that measurement errors are no more prevalent today than they were in earlier studies.

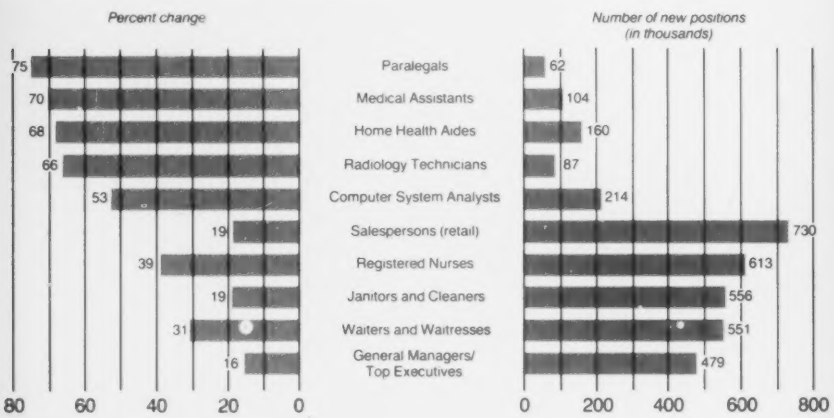
Improving productivity therefore remains a puzzling policy dilemma. The U.S. has maintained its high standard of living in recent years by adding more than 24 million new workers to its labor force and by borrowing from foreign investors. Demographic and economic trends suggest that these strategies may not be as feasible during the 1990s as they were a few years ago. The number of young entry-level workers in the population is declining, and there is growing concern among

some policy makers about the amount of U.S. assets held by foreign investors. Developing human resource policies, therefore, is seen as the best and most feasible way to increase economic productivity and prevent economic stagnation or decline.

Job Skills and Opportunities

Changing economic conditions are bringing a new mix of jobs to the U.S. economy. The Bureau of Labor Statistics projects that 18 million jobs will be created between now and the turn of the century. Over 90 percent of these positions (16.7 million jobs) will be in the service sector. Retail trade,

Figure 2.
EMPLOYMENT OPPORTUNITIES: 1988 TO 2000



SOURCE: U.S. Bureau of Labor Statistics

business, health, and education are expected to be among the fastest growing service industries. But these facts alone, tell us nothing about the actual skills or educational training that tomorrow's workers will need. A close look at these labor market projections shows that while not every new job will require advanced educational training, education will hold the key to economic security, job mobility, and higher wages.

Managerial, professional, and technical occupations that require education and training beyond the high school level are projected to have the fastest *rates* of growth during the next decade. Thus, employment for paralegals, medical assistants, medical technicians, and computer specialists is expected to double within the next 12 years. But these rates generally translate into fewer than 200,000 new jobs in each of these occupational categories (see figure 2). In contrast, the largest *number* of new jobs will be in occupations that

require more modest educational training. Over 500,000 new positions will be created for retail salespersons, janitors and cleaners, waiters and waitresses, and general office clerks. Of the 10 occupational fields that are expected to create the greatest number of jobs in the next decade, only two (registered nurses and general managers/top executives) require relatively advanced levels of education and training.

At a minimum, most jobs of the future will require good communication skills, basic competency in math and reading, the ability to give or receive directions, and an aptitude for solving problems. In particular, the ability to interact with other people, customers and co-workers, will be a key element to employment opportunities in the 21st century. There will be few jobs for the unskilled or poorly educated worker. Yet businesses are finding that nearly one in every five American workers is functionally illiterate and unable to participate in even entry-level training.

If the U.S. economy remains on its current course, these data raise some troubling questions about whether we are moving toward a *two-tiered* economic system with high-skilled/high-paying jobs on one level and low-skilled/low-paying jobs on another level. This prospect raises important policy questions concerning equity and opportunity for the coming century. Will minorities and youth from low-income backgrounds be funneled into the lower tier? Will disadvantaged people be trapped in these lower-tier jobs, or can they use these positions as stepping stones into higher-tier positions? Will people working on the lower-tier receive adequate wages and benefits to provide them with a stable and adequate standard of living? Can educational opportunities – always a key to higher-paying jobs and wider employment opportunities – be kept open to minorities and economically disadvantaged persons?

▲ **Workers with scientific and technical skills will be in high demand, while those with limited education and training will face a declining job market.**

Maintaining Flexibility

A generation ago, a worker might make two or three job changes in his or her lifetime. Today, some analysts estimate that the average worker may make as many as 10 job changes and two or three career changes. Each change is likely to require some retraining or adaptation of skills. Some changes may require residential relocation.

This increased flexibility is partly the result of individual choice – workers striving to improve their career options or standard of living. But it also is caused by the changing nature of jobs and production processes. Technical changes have made small lot "customized" manufacturing more feasible, and service industries often must deliver their product on a short-term, as-needed basis. Employers have responded to such changes by turning to part-time and temporary employees.

Indeed, part-time and temporary jobs have been the fastest growing segment of the labor market. Since 1980, part-time work has risen 20

percent, compared with a 12 percent increase in the total labor force. The number of temporary workers almost tripled since 1980. One of every six U.S. workers (or 20 million people) is now employed in part-time, year-round positions. Another 760,000 workers hold temporary jobs at any given time throughout the year. Nearly two-thirds of all part-time workers are women and half of all older workers (age 65 or older) are employed part time. Labor market projections anticipate that this rapid rate of growth will slow as the number of young people in the population declines and as more women seek full-time employment opportunities.

Some analysts view the increase in part-time and temporary work as suggestive of future employment trends that will enable companies to respond quickly and efficiently to changing market demands and increased competition. It also complements current demographic trends by providing flexible employment opportunities for women, students, and older people who may not want full-time work. Critics, however, charge that the trend is creating a new class of poorly paid, "disposable" workers who receive few fringe benefits from their jobs and continuously face uncertain employment prospects. Long-term career planning becomes more difficult under this arrangement, and some workers may be left without pensions or adequate retirement income. The trade-offs between job security and worker flexibility will pose important human resource policy choices in the coming years.

THE EMERGING WORK FORCE

While unexpected shocks to the economy or technological innovations can significantly alter the projections of economists, demographic projections can be made with somewhat more certainty. Over 80 percent of the people who will make up the U.S. population in the year 2000 are already born. Two-thirds of our future labor force are currently employed.

Yet demographic patterns of how people work and live have undergone tremendous changes in the past 30 years. Birth rates have dropped dramatically, family size has decreased, more than half of all married women are in the labor force, and the population age 65 and older has nearly doubled. Such demographic facts have important implications for the size, composition, and needs of the future work force and can provide a solid foundation for analyzing human resource problems.

Size of the Labor Force

A common misconception heard frequently is that the size of the labor force is shrinking. Reports of labor "shortages" and jobs going unfilled help to fuel this misconception. But in reality, the size of the labor force is expected to increase by almost 20 million people between now and the turn of the century. More than 141 million Americans will be in the work force by 2000, compared with 122 million today. Even projections that use fairly pessimistic assumptions about economic and population growth show that the labor force is not likely to decline in size until sometime after 2020.

One important component of the labor force — the number of young workers entering the work force for the first time — is decreasing. In 1965, U.S. birth rates dropped sharply and have remained at low levels. This has created a relative scarcity of young people who are now under the age of 20 and who will form the principal pool of young workers for the next 20 years. Consequently, the labor force will grow more slowly than it did during the 1970s and early 1980s when the baby boom generation entered the work place. Because baby boomers are not likely to retire in great numbers until after 2010, the size of the labor force is expected to grow for at least another 30 to 40 years.

Current concerns about so-called labor shortages are really more an issue of how well workers' skills and experiences match job requirements or whether workers live in areas that provide sufficient employment opportunities, rather than the overall size of the labor force. These types of problems might be addressed through education and job training programs, adjustments to wages and benefits, incentives for workers to relocate to other communities, labor-saving technologies, or permitting greater immigration of foreign workers with specific jobs skills that may be in short supply. A better understanding of threatened labor "shortages" thus expands the range of policy options that might be considered.

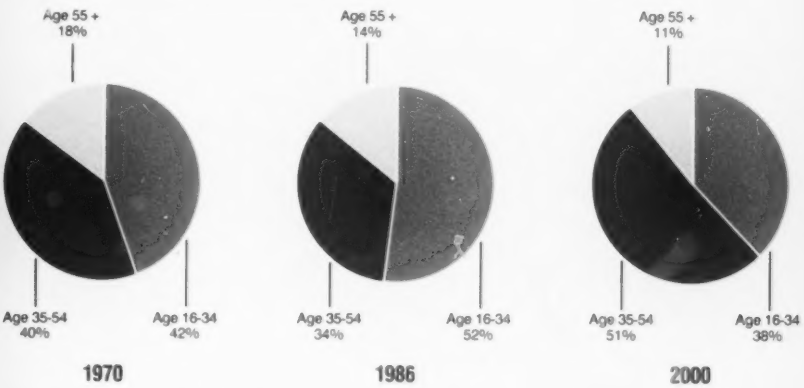
Aging of the Work Force

Demographic and labor force projections show a gradual maturing of the U.S. labor force over the next decade, but not a predominance of older workers. The aging of the work force is caused primarily by the aging of the baby boom generation that currently accounts for about half of all workers. The share of workers who are age 55 or older has

actually declined. In 1970, nearly one in five workers was age 55 or older; by 2000, only one in 10 will be in this age group (see figure 3). At the same time, the share of middle-age workers (ages 35 to 54) will grow as the baby boom generation matures. By 2000, over half of all workers are expected to be between the ages of 35 and 54 – a time of life when most workers are considered to be at the peak of their productivity.

The aging of the baby boom generation also means that the average age of U.S. workers will increase. By 2000 the median age of the work force

Figure 3.
THE MIDDLE AGING OF THE WORK FORCE



SOURCE: Hudson Institute, *Workforce 2000*

will rise to 39, compared with 36 today. But this change is not unprecedented. The median age of the post-World War II labor force peaked at age 41 around 1962. If members of the baby boom generation follow current work/retirement patterns, the median age of the future labor force is not expected to exceed 1962 levels. Concerns that the aging of the work force will inhibit productivity may therefore be unwarranted. But the retirement decisions of the baby boom generation will significantly influence the costs of retirement programs and the career mobility of younger workers who follow behind them. Human resource policies will need to contend with two competing influences: whether to encourage baby boomers to remain in the labor force to lessen retirement costs and perhaps substitute for a declining number of younger workers or to withdraw from the labor force to allow younger workers more rapid career advancement.

Women and Minorities

Over the past 30 years, the composition of the U.S. labor force has changed dramatically. White male workers who dominated the work force in 1960, now represent less than half of all workers.

By 2000, they are expected to account for just 45 percent of the work force (see table 1). Over 80 percent of future labor force growth is expected to come from increasing numbers of women and minorities in the work place.

Bringing more women and minorities into the labor force will require a reassessment of current work force policies and education programs. Today, more than 70 percent of all women between the ages of 25 and 54 are in the paid labor force, and the vast majority of them, according to a U.S. Bureau of Labor Statistics study, are full-time, career-oriented

Table 1.
COMPOSITION OF THE U.S. LABOR FORCE: 1960–2000

	1960	*1970*	*1980*	*1988*	*2000*
Number of Workers (in millions)	72.1	82.8	106.9	121.7	141.1
Percentage of Workers					
White males	61	56	51	48	45
White females	28	33	36	38	39
Blacks	11	11	10	10	12
Hispanics	NA	NA	6	7	10
Asians/others*	NA	NA	NA	3	4

NA = data not available

**Includes American Indians, Alaskan Natives, and Pacific Islanders.*

Figures may not add to 100 percent because persons of Hispanic origin may be of any race.

SOURCE: U.S. Department of Labor

workers. Demographic trends, such as an increasing proportion of single mothers, a decreasing pool of non-employed relatives and friends, and an increasing number of mothers who return to work within six months of the birth of their first child, suggest that the pressures of juggling work and family responsibilities will remain significant factors in the life of most working women. Work force policies designed to address work/family stress, such as child-care services, parental leave, and flexible work arrangements, will remain at the top of the human resource policy agenda in the 21st century.

Racial and ethnic minorities are fast becoming a larger share of the U.S. population. Nearly 30 percent of all Americans will be from minority backgrounds in 2000, compared with 20 percent in 1980. Yet studies show that many minority workers, especially those from disadvantaged backgrounds, lack the educational skills needed to compete in today's job market. Nearly one in three young blacks and one in five young Hispanics were unemployed in 1988. Efforts to reduce school dropout rates and to improve educational instruction will be an integral part of human resource strategies in the next century.

Immigration

During the 1970s, when the large baby boom cohort entered the labor force, immigrants accounted for just 11 percent of all labor force growth. Now, with U.S. birth rates at relatively low levels and fewer young entry-level workers, immigrants are expected to account for 22 percent of future labor force growth. The increasing importance of immigration to the U.S. labor supply has placed renewed attention on the role of immigrants in meeting labor force needs.

Approximately 580,000 legal aliens have been admitted to the U.S. each year since 1980. Another 200,000 persons are thought to enter each year as illegal aliens, although the exact number is subject to considerable debate. Most of the legal aliens (over 70 percent) are admitted under "family reunification" provisions of current U.S. immigration laws. Seventeen percent are admitted as refugees, and just under 10 percent enter under "occupational preference" criteria.

New immigrants tend to be drawn to major metropolitan areas, so the task of absorbing them into the economy is distinctly an urban phenomenon. Nearly 90 percent of all legal aliens live in urban areas, compared to about 75 percent of the U.S.-born population. Just six states (California, New York, Texas, Florida, New Jersey, and Illinois) account for over 70 percent of recent immigrants.

The impact of new immigrants on local economies appears to be highly variable, depending on the economic and social characteristics of the particular immigrant group and on the structure of the host community. In some cases, immigrants may substitute for or displace U.S. workers, particularly in low-skilled jobs, but overall, most studies find that immigrants tend to have a positive effect on the economy.

Although current immigration policy does little to match immigrant educational characteristics to the needs of the U.S. labor market, over one-third (36 percent) of recent immigrants had at least some college-level training with 22 percent of them completing four or more years of college.

Comparable statistics for the U.S.-born population were 32 and 16 percent, respectively (see figure 4). On the other hand, one-third of recent immigrants had only an elementary school education, compared with just 18 percent of the U.S. population.

Educational attainment varies significantly among immigrants by country of origin. Data from the 1980 Census show that 77 percent of immigrants over age 25 from Korea and from the Philippines who arrived in the U.S. between 1970 and 1980 had completed high school. In contrast, only 27 percent of the immigrants from the Dominican Republic and 17 percent from Mexico had a high school-level education. While growth in the service sector may afford some of the least skilled workers an opportunity for employment, socioeconomic mobility by American standards will be more difficult to achieve for those on the bottom of the educational ladder.

Legislation before the U.S. Congress has proposed modifications in immigration law to better match immigrant educational characteristics to U.S. labor needs. Critics warn, however, that immigration policies should not be viewed as a panacea for addressing labor force ills, nor as a substitute for human resource investments in education and job training programs.

HUMAN RESOURCE PRIORITIES

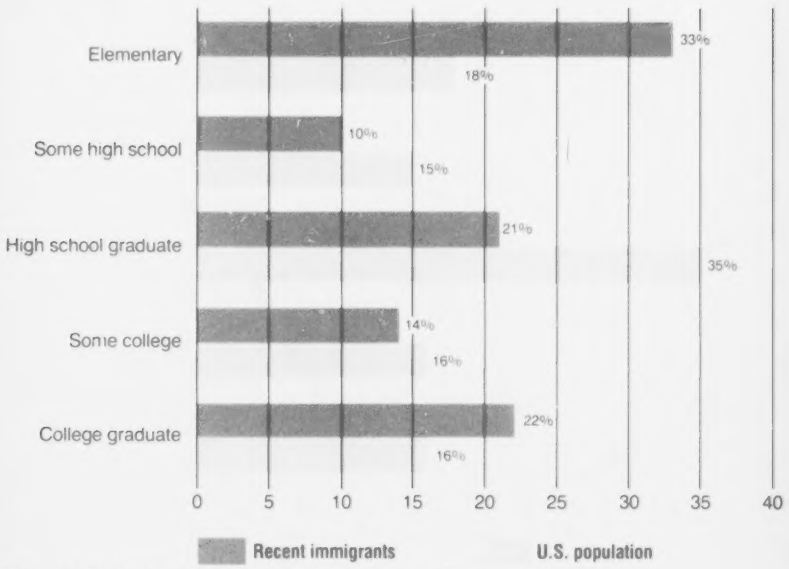
The realities of demographic change are creating pressing problems for the social and economic structures of American society. Schools are being asked to educate an increasingly diverse student population. Families are becoming more fragmented as a result of divorce, remarriage, and residential migration patterns. Businesses are finding a growing gap between workers' skills and job requirements.

The decade of the 1990s provides an important window of opportunity to address human resource needs and prepare for the coming century. The number of people age 65 and older will increase more slowly than it has during the past 40 years; the baby boom generation will enter its peak earning and economically productive years; and the school-age population will grow at a relatively moderate pace. These demographic trends suggest that the 1990s will be an opportune time to make long-term investments in the nation's social and economic future. The implications of demographic change on several important human resource policy areas are discussed in the following sections.

Educating Youth

After more than a decade of declining school enrollments, schools in many parts of the country will face a sharp increase in the size of their student bodies during the 1990s. Nationally, the school-age population (ages 5-17) is expected to grow by

Figure 4.
EDUCATIONAL LEVELS OF RECENT IMMIGRANTS AND U.S. POPULATION



*Data are for the population age 25 and older who immigrated to the U.S. between 1970 and 1980.

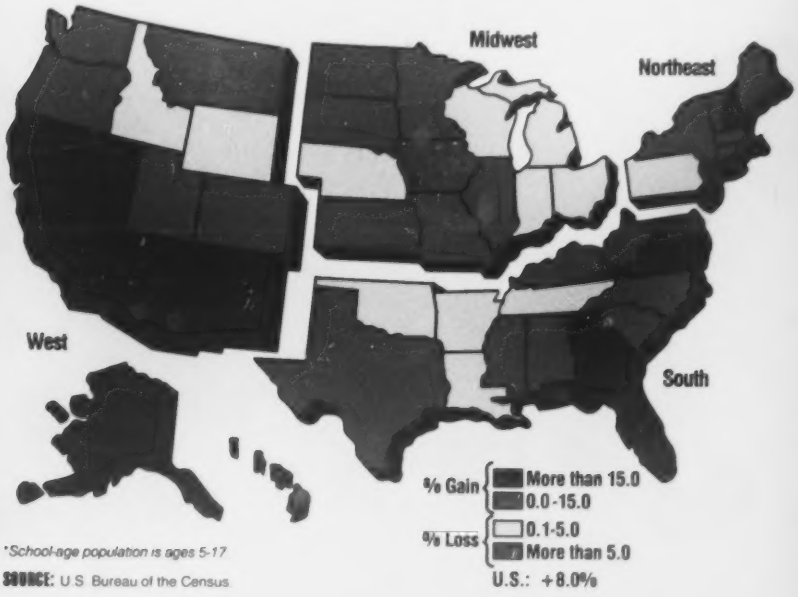
SOURCE: U.S. Bureau of the Census

roughly 8 percent between now and the turn of the century. This growth is not because birth rates have risen appreciably. U.S. fertility levels have hovered around 1.8 births per woman for almost a decade. Rather, the increase is because the baby boom generation has hit its prime childbearing years, thereby increasing the number of women who are of childbearing age. Even if baby boom couples limit their families to only one or two children, the enormous size of the baby boom cohort is producing a sharp increase in the number of children in the population. Indeed, there were more births in 1988 than in any year since the end of the baby boom in 1964. But this baby "boomlet" is expected to diminish by the mid-1990s as the baby boom generation passes out of the prime childbearing ages. By 2020, the size of the school-age population is likely to fall once again if current demographic trends persist.

Currently, about 45.4 million children are enrolled in U.S. elementary and secondary schools. Most of these children (roughly 90 percent) attend public schools. Projected increases in school

enrollments, however, will not be distributed evenly throughout the country (see figure 5). Arizona and New Mexico, for example, are projected to see more than a 30 percent increase in the size of their school-age populations. Alaska, New Hampshire, Florida, and California are expected to experience increases over 20 percent. But at least 18 states, mostly in the South and Midwest, are likely to have declines in the size of their student populations. Residential shifts from cities to the rapidly growing outer suburbs further exacerbate differences.

Figure 5.
PROJECTED CHANGE IN SCHOOL-AGE POPULATION: 1988 TO 2000



*School-age population is ages 5-17

SOURCE: U.S. Bureau of the Census

School enrollment patterns over the next decade also are likely to vary by age of students. The number of elementary school children (ages 5-11) is expected to grow by roughly 10 percent, while the high school population (ages 15-17) will increase by less than 5 percent. The most rapid growth is expected to occur among students at the junior high school level (ages 12-14) which is projected to increase by nearly 20 percent. Elementary and junior high schools may be looking for teachers in the next decade, while high schools may hold the line on faculty recruitment. Targeting resources to the areas of need – and then shifting these resources as children progress through the school system – will be a major challenge for educators in the 21st century.

But the shifting numbers and ages of students are only two aspects of the educational dilemma. The socioeconomic background of children

entering the school system also is changing. Racial and ethnic minorities are fast becoming a larger share of the student population. By 2000, nearly one-third of all school-age children will be from minority groups. Of the 100 largest school districts in the U.S., 49 already report that over half of their students are from minority populations. Seven of these school districts (Oakland, Washington, D.C., Atlanta, New Orleans, Detroit, Newark, and San Antonio) had over 90 percent minority enrollment.

The increasing number of minority children in the school system has two important implications for educators and policy makers. First, school personnel may have to adapt their teaching methods to address the different values, expectations, and language abilities that minority children may bring to the classroom. Second, schools may become a more integral part of the social service delivery system. Minority children are three times more likely to live in poverty than are white children. The largest number of children living in poverty is found in the South, but over half of all Hispanic children in the Northeast and half of all black children in the Midwest are poor. Minority children also are at greater risk of living in single-parent families. Forty-two percent of all white children and 86 percent of black children are likely to spend some part of their childhood in a single-parent home. As growing numbers of children come from families that lack the resources to provide a basic standard of living, social policies may increasingly turn to schools to provide children with a healthy and secure start on life.

▲ By the year 2000, minorities will account for one-third of all school-age children.

Teacher Shortages

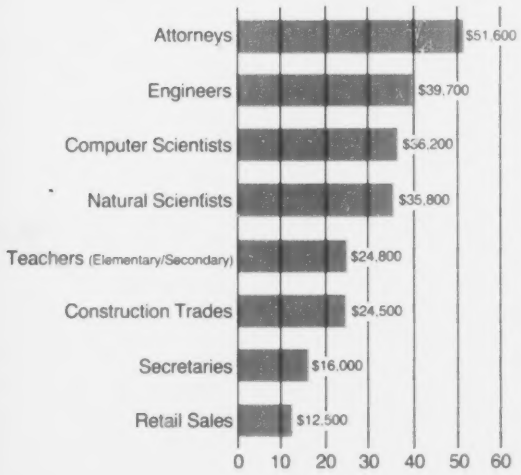
While the number of minority students is growing rapidly, the number of minority educators has risen slowly. One in every three students in 1987 was a minority, but only one in every six teachers was from a minority background, compared with one in seven in 1980. While blacks and Hispanics are entering the teaching profession in greater numbers, the increase has not kept pace with the growth in the size of the minority student population.

Some studies suggest that one reason minority students leave school is because teachers and administrators lack a cultural understanding of their problems. If so, then the mismatch between the

proportion of minority students and the proportion of minority educators could have a detrimental effect on minority dropout rates. Currently, about 14 percent of black youths and 30 percent of Hispanic youths between the ages of 16 and 24 have not completed high school and are not enrolled in school. Comparable data on whites show that 12 percent are school dropouts.

But attracting individuals to and retaining them in the teaching profession has been difficult in recent years. Competing opportunities, especially for women, are changing the profile of the teaching profession. Fewer young women indicate that they are interested in teaching as a career. A 1985 survey by the American Council on Education found that only 10 percent of women entering college planned to teach after they graduated, compared to 31 percent in 1970. Serious teacher shortages could develop early next century when nearly one-third of all teachers begin to approach retirement age.

Figure 6.
MEDIAN ANNUAL SALARIES FOR SELECTED OCCUPATIONS: 1987



SOURCE: U.S. Bureau of Labor Statistics.

Spot shortages of teachers, however, are more likely to pose problems for the 1990s. Fast growing suburban areas and sunbelt cities will need additional teachers to keep pace with their growing student populations. But an important barrier to interstate movement of teachers is the inability to transfer retirement benefits from one state to another. The portability of teachers' pensions could become an important policy issue in the 1990s if regional imbalances between teacher supply and demand emerge.

Already spot shortages of teachers with scientific and technical training are apparent. A 1986 study by the National Science Foundation found that over half of all high school principals reported difficulty in hiring qualified faculty in physics, chemistry, computer sciences, mathematics, and foreign languages. Teachers with good technical skills are being lured into private industry by better paying jobs. While teachers' salaries have increased over the last decade, they remain behind the earnings of other professionals (see figure 6).

Improving teachers' salaries may be one way of attracting and retaining qualified teachers, but

school boards and educators are confronted with competing budget constraints and public attitudes of "no new taxes." Policy makers in the 1990s will need to decide how best to achieve and reward educational excellence – whether through across-the-board pay raises for all teachers, salary increases for specific types of teachers who are in short supply, merit pay raises, or linking teacher salary increases to student performance.

College Opportunities

As in the past, education and job skills will hold a key to future employment and economic security. The college-bound student will have the opportunity to acquire the knowledge and skills needed to compete effectively in the job market of the 21st century. But not all young people go to college, and many who might benefit from college-level training are unable to afford the costs.

For many young people and their families, the costs of a college education have become exceedingly expensive. Data from the U.S. Department of Education show that the average costs of attending a four-year college rose by 40 percent (in inflation-adjusted terms) since 1980. The annual costs of tuition, fees, room and board at a four-year public university rose, on average, from $3,575 in 1980 (using 1988 prices) to $4,800 in 1988. For a private university, comparable costs rose on average from $8,437 to $13,300. Median family income (in inflation-adjusted terms) during the same period rose by only 7 percent. Six of every 10 full-time undergraduate students received some form of financial aid in 1987, which averaged about $3,800 per year from all sources.

▲ **Increasing costs are making a four-year college education prohibitively expensive for many students.**

Students from low-income families, particularly minority youth, increasingly feel closed out of the opportunity to attend four-year colleges. College enrollment rates for minority students are lower now than in 1975. For many minority students, post-secondary education is likely to be in a two-year community college or vocational school rather than a four-year university. Minority advocates call for more aggressive recruitment of minority students by four-year colleges and an increase in grant and scholarship programs to assist students from low-income homes.

Worker Retraining

While the educational mandate of the 1990s will be to prepare young people for the future work force, the process of learning will not end at the schoolhouse door. Lifelong learning – that is, the need to upgrade skills or to learn new skills – will be commonplace in the 21st century. U.S. businesses currently spend $40 billion annually on various educational and training activities. The federal government earmarked nearly $6 billion in 1988 for job training and employment programs, with additional employment-related funds channeled through welfare reform and income security programs. State and local governments added to these totals. Yet such efforts may represent only the tip of the iceberg in terms of the task that lies ahead. Changing technologies, increased foreign competition, and poorly prepared entry-level workers are likely to increase the need for job-related training in the future.

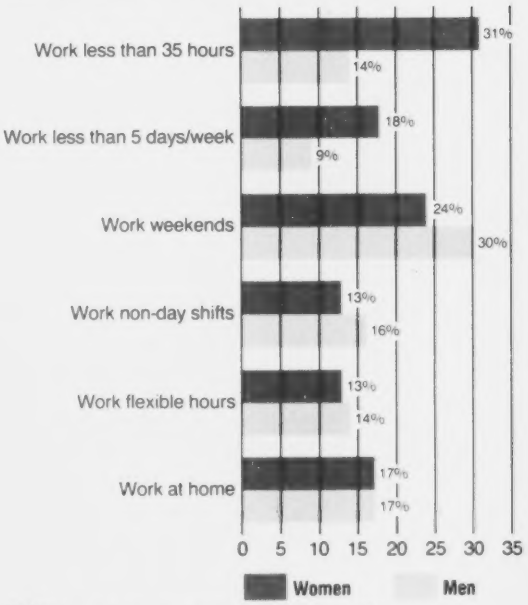
Such policies, however, are not without risk or controversy. Small businesses may not be able to afford the costs of implementing such programs. Larger firms may fear that retrained workers will seek employment elsewhere, thereby undercutting the company's return on its investment. A recent survey by the Society for Human Resource Management found that only one in four companies offered remedial training (or retraining) programs. Large companies and those in tight labor markets were most likely to provide job training. Most companies, however, simply did not see any reason to get involved. Such attitudes may change as labor markets tighten, but public policies, such as tax credits or other incentives, can be used to encourage workers to seek retraining or companies to provide job training programs. The next century will call for a more literate and technically proficient work force. Investing in worker's skills will be essential for the nation's economic well-being.

Work and Family Policies

In 1960, less than half of all women age 16 and older were in the labor force. Now, close to 60 percent are working. In 1975, fewer than one in three women with a child under age one was working. Now, more than half do. These demographic changes have altered the ways in which families function and are forcing many businesses to take a new look at their work place policies.

Studies have shown, for example, that the demands of coordinating both work and family life falls largely on women and can play a major role in determining women's work patterns. Women are twice as likely as men to work part time (that is, less than 35 hours per week) and to work a reduced work week (that is, less than five days per week). In fact, reduced-week, part-time employment is particularly prevalent for women with young children (under age 14), suggesting that this may be one way in which women attempt to meet their child-care needs. Weekend and evening work is surprisingly common for a substantial segment of the labor force (see figure 7). Because the growing service sector accounts for most of the non-day and weekend jobs, more Americans are likely to follow these nontraditional work patterns in the future. This may mean that the provision of child-care services, for example, will have to accommodate more working parents who do not follow a typical 9-to-5, Monday-to-Friday work schedule.

Figure 7.
WORK PATTERNS OF MEN AND WOMEN: 1985

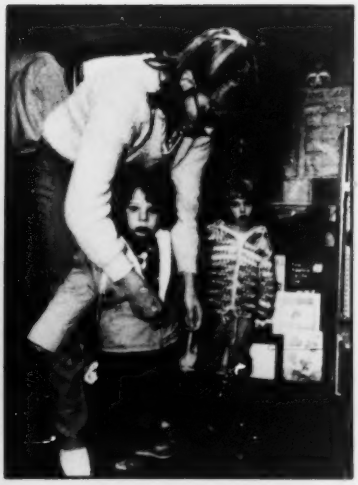


SOURCE: Harriet B. Presser, *Demography*, November, 1989, based on U.S. *Current Population Survey*.

Changing work/family patterns also influence measures of labor force productivity. Instances of absenteeism, tardiness, leaving work early, and dealing with family matters during working hours were strongly related to employee difficulties in coping with child-care problems and handling dual work/family responsibilities. Surveys of major corporate work sites found that three-quarters of all employees with children under age 18 dealt with family matters during working hours. Forty percent of working parents missed at least one day of work in the past three months because of child care. Women were four times more likely than men to lose time from work because of family reasons, and twice as likely as men to stay home with a sick child. While most of the research on work/family stress tends to focus on employees' need for child-care services, care of infirmed elderly family members is

likely to pose similar problems in the years ahead as the population ages. Indeed, researchers have already coined the phrase the "sandwich generation" to refer to people who simultaneously care for their own children as well as an infirmed parent or parent-in-law.

Current employment practices, however, are often insufficient for easing the time constraints and stresses that face today's workers. According to U.S. Department of Labor statistics, only 13 percent of all wage earners had jobs that allowed for flexible time arrangements. Only 5 percent of all companies in 1987 assisted employees in finding child care through a company-sponsored information and referral program, and only 2 percent provided on-site child care. As labor markets tighten in the 1990s, many corporate planners believe that work/family policies will be a key to labor recruitment and business competitiveness. While the expansion of such policies will add to business costs, the alternative of *not* taking action also carries an implicit price by raising questions of gender equity, lost productivity, family stress, and, perhaps most importantly, the impact on children.



▲ With more than half of all mothers working, finding (and affording) quality child care is a major concern of working parents.

Older Workers

Although no one can predict the future, two trends — service sector growth and the declining number of younger workers — suggest that there will be increasing demand for older workers. Service sector jobs tend to provide the flexibility that older workers desire, and fewer younger workers creates a need to retain or recruit older workers.

But who is an "older worker," and what policies will keep older people in the work force? The federal Age Discrimination in Employment Act defines an older worker as anyone age 40 or older, but research studies and legislative statutes often use ages 55, 60, or 65 to designate older workers. While definitional differences sometimes cloud the debate on work/retirement policies, most analysts agree that age alone is a poor criterion for determining labor force status. Age-based policies ignore individual differences, penalizing younger persons who may have a genuine need to withdraw from the labor force or squandering the talents of older persons who might continue to make a valuable contribution to society.

Although demographic trends suggest a need for older workers, significant barriers to employing older persons remain. From the employer's perspective, older workers may cost more than younger workers. Salaries tend to rise with years of experience and seniority within a given firm. Many managers also believe that older workers do not adapt well to new technologies. A 1989 survey sponsored by the American Association of Retired Persons found that only one in four senior managers

expressed a "commitment" to workers who were over age 50. Older workers who may wish to remain active in the labor force may find some employers simply unable or unwilling to pay for their services.

From the older person's perspective, financial considerations discourage paid employment. Part-time work, if available, often provides relatively low wages and few benefits. Full-time work is discouraged through the Social Security earnings test which penalizes persons under age 70 who receive Social Security benefits and earn income above a specified ceiling (set at $9,360 for 1990). Until 1990, $1 in benefits was lost for every $2 earned above the ceiling. Beginning in 1990, benefit reductions will be made on a 1 to 3 ratio.

Many analysts argue, however, that the Social Security earnings test has little impact on work/retirement decisions. They see private pensions as a principal factor in discouraging continued employment of older workers. Studies show that even a small pension can induce individuals to retire, and many firms have now instituted early retirement incentive plans. While one in three eligible workers accepts such plans, others view the plans as corporate attempts to prune payroll costs by eliminating more expensive, and generally more experienced, older workers.

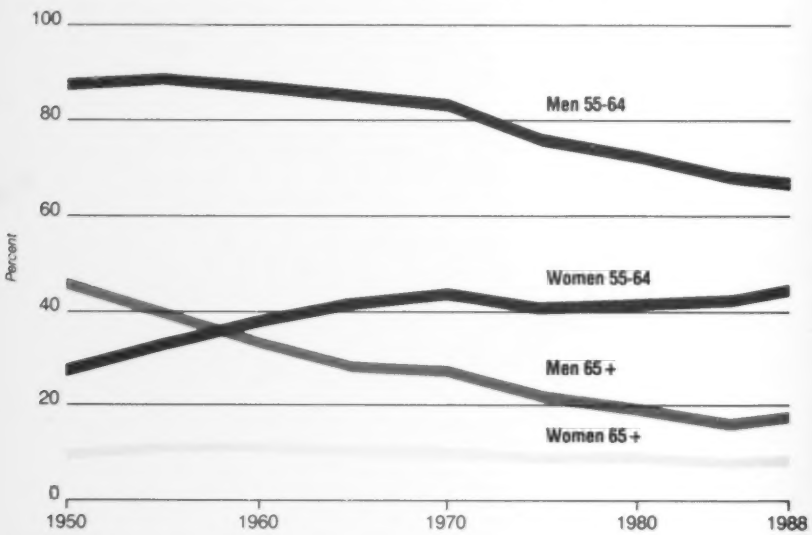
For now, public and private retirement programs seem to be working at cross purposes. Social Security reforms are trying to encourage work, while liberalized private pension plans discourage work. As growth in the labor force slows, employers may begin to reassess their policies on early retirement programs.

Retirement Trends

While most people tend to regard age 65 as the "normal" age of retirement, nearly 60 percent of men and 70 percent of women now begin receiving Social Security benefits at age 62. Labor force participation rates for older men have declined dramatically, as figure 8 shows. In 1950, 87 percent of men ages 55 to 64 and 46 percent of men age 65 or older were in the labor force, compared with 67 percent and 17 percent, today. Participation rates for women age 55 to 64, on the other hand, increased, although they remain below the rates of older men. Today, just 12 percent of all persons age 65 or older work, even on a part-time basis.

Decreasing labor force activity and increasing life expectancy suggests that future generations are likely to spend more years in retirement than earlier ones. Looming large in this picture is the baby boom generation, which will begin to retire around 2010, if current patterns hold. Because the baby boom generation is so large relative to the ones that come after it, there is concern that it will place a burden on future taxpayers. Analysts point to increases in the *aged dependency ratio*—a measure of the number of persons age 65 and older relative to those of working age (ages 18 to 64). In 1950, the ratio was one older person per eight working-age people; now the ratio is one to five, and by 2030, it is projected to be one to three.

Figure 8.
LABOR FORCE PARTICIPATION RATES FOR OLDER WORKERS: 1950 TO 1988



SOURCE: U.S. Department of Labor

As an index of how demographic change might affect future tax burdens, the aged dependency ratio is misleading because it does not account for possible changes in labor force behavior and omits the declining proportion of children in the population. If children are added, then the *total dependency ratio* does not exceed the level it attained in 1964 at the height of the baby boom. What is at issue is the relative costs of supporting younger and older segments of the population and the sources of that support. Children's services are funded primarily by parents and at state and local levels of government. Most elderly services are funded through federal government programs and the personal resources of older people and their families. This gives rise to different sets of personal and intergovernmental responsibilities. The question is finding the appropriate mix of financial mechanisms to meet these needs and a willingness to pay for services.

Despite periodic alarms about the solvency and viability of the Social Security system, long-

range (75 year) forecasts by Social Security actuaries show that the system is financially sound and currently accumulating a large surplus of funds in anticipation of the baby boom generation's retirement. But federal budget deficits and rising health-care costs pose significant threats to maintaining the program on its current course.

Industrialized countries around the world are following similar demographic patterns, and cross-cultural comparisons may be encouraging to those who worry that the anticipated increase in social and financial costs of an aging population could cripple the U.S. economy. Although other countries are spending relatively more than the U.S. on social programs, their economies are still quite competitive in world markets.

CHOICES FOR THE 1990s

The decade ahead brings us to an important crossroad. How we develop and use our human resource potential will be a critical factor in determining our quality of life and economic strength in the 21st century. Important choices need to be made.

- **Will we make time for our children?** Changing life styles and economic pressures have resulted in American families having fewer children and in spending less time with their children. The increase in women's labor force participation, the growing pressures and complexities of the work place, and the rise in single-parent homes have placed significant strain on American families. Children are growing up amid a new set of family patterns and child-care arrangements. No one knows what the long-term, developmental consequences of these patterns will mean, but our future rides on a favorable outcome. Making quality child care available and affordable to American families is one way to help working parents alleviate stress, and give children a safe and promising start on life.

- **Will we strengthen our educational system?** Because the children passing through our schools today will form the work force of the 21st century, schools play a key role in developing America's human resource potential. The extent to which young people emerge from the educational system prepared for the future will affect not only their individual well-being, but also that of the nation. It is not surprising then that states and local communities have launched a variety of experimental efforts to improve their educational programs by setting educational standards, focusing on curriculum reforms, and altering administrative structures. To succeed, however, educational reforms will need to be based on the joint efforts of parents, teachers, school administrators, business and political leaders, and the public at large.

- **Will we restructure work policies to match our changing demographic patterns?** Economic and demographic trends have indelibly blended work and family life. The increasing number of working women has spotlighted the need for child care, elder care, and parental leave policies. The growing number of two-career couples has limited (or at least, complicated) promotion and transfer policies. The aging of the work force is placing greater emphasis on employer's pension policies, retirement policies, and health-care programs. And the growing number of new immigrants in the labor force is placing new emphasis on language skills and multicultural diversity. Many analysts believe that successful businesses in the 1990s will need to devise creative human resource strategies to address the changing demographic composition of the future labor force.

- **Will we create opportunities for minorities and persons from disadvantaged backgrounds?** Future labor force growth will depend increasingly on minority workers. Yet recent studies show that minority groups continue to lag behind their white counterparts in measures of income, earnings, employment status, and education. Many minority persons remain separated from the mainstream of American life under conditions of poverty and inequality. Opening opportunities to people from disadvantaged backgrounds -- through education, health care, housing, or employment and training programs -- must be a central part of human resource development strategies.

- **Will we redefine the concept of being "old"?** Stereotypes of inactive and frail elderly have distorted our ideas about the roles and contributions of older people to society. Increasing life expectancy and improved health status are changing these images. A substantial body of research indicates that persons who now reach the "third quarter of life" (that is, ages 50 to 75) are much healthier than previous generations and that the prevalence of long-term chronic disabilities is concentrated among persons who are over age 75. The increasing number of active older people is reshaping our public policies toward the aged. Finding new and meaningful roles for older people -- whether through the paid labor force or volunteer activities -- will add to the richness and strength of American life.

The 1990s provides a unique opportunity for addressing human resource needs. If we postpone (or ignore) the choices at hand, demographic factors in the years ahead could push us to the edge of a formidable crisis. Carefully designed policies and programs that improve the nation's economic productivity, foster creativity, and maintain a high quality of life for our citizens will require a strong commitment to developing our nation's human resource potential in the decade ahead.

BACKGROUND READINGS

Aaron, Henry J., Barry P. Bosworth and Gary Burtless, *Can America Afford to Grow Old? Paying for Social Security* (Washington, DC: The Brookings Institute, 1988).

Carnegie Corporation, *Turning Points: Preparing American Youth for the 21st Century* (New York: Carnegie Council on Adolescent Development, Carnegie Corporation of New York, 1989).

Committee for Economic Development, *Children in Need: Investment Strategies for the Educationally Disadvantaged* (New York: Committee for Economic Development, 1987).

Doyle, Frank P. and Rocco C. Siciliano, "A New America: The Dramatic Changes Affecting the Work Force of the 21st Century," *Business in the Contemporary World*, Vol. 1, No. 3 (Spring 1989).

Drucker, Peter, *The New Realities* (New York: Harper and Row Publishers, Inc., 1989).

Employment Benefit Research Institute, *America in Transition: Benefits for the Future* (Washington, DC: EBRI, 1987).

Griffith, Jeanne E., Mary J. Frase and John H. Ralph, "American Education: The Challenge of Change," *Population Bulletin*, Vol. 44, No. 4 (Washington, DC: Population Reference Bureau, Inc., 1989).

Hodgkinson, Harold L., *All One System: Demographics of Education, Kindergarten through Graduate School* (Washington, DC: Institute for Educational Leadership, Inc., 1985); *The Same Client: The Demographics of Education and Service Delivery Systems* (1989).

Hudson Institute, *Workforce 2000: Work and Workers for the 21st Century* (Indianapolis, IN: Hudson Institute, Inc., 1987).

Presser, Harriet B., "Can We Make Time for Children? The Economy, Work Schedules, and Child Care," *Demography*, Vol. 26 (November 1989).

Resnick, Lauren, *Education and Learning to Think* (Washington, DC: National Academy Press, 1987).

Rodgers, Fran Sussner and Charles Rodgers, "Business and the Facts of Family Life," *Harvard Business Review* (November/December, 1989).

U.S. Department of Labor, Bureau of International Labor Affairs, *The Effects of Immigration on the U.S. Economy and Labor Market* (Washington, DC: Government Printing Office, 1989).

The William T. Grant Foundation, *The Forgotten Half: Non-College Youth in America* (Washington, DC: Commission on Work, Family and Citizenship, 1988).

STATE DATA TABLE

	EDUCATION					LABOR FORCE
	POPULATION AGES 5-17 1988 (in 1000s)	% POPULATION CHANGE AGES 5-17 1983-2000	% MINORITY SCHOOL ENROLLMENT 1987	EXPENDITURES PER PUPIL[a] 1988-1989	AVERAGE TEACHER SALARY[a] 1988-1989	TOTAL LABOR FORCE 1988 (in 1000s)
United States	45,389	8	30	$4,257	$29,567	121,740
Alabama	819	2	38	2,754	25,190	1,887
Alaska	110	29	34	7,038	41,693	242
Arizona	653	34	38	3,451	28,684	1,654
Arkansas	476	– 2	25	2,618	21,692	1,123
California	5,113	20	46	3,916	35,285	14,036
Colorado	605	13	21	4,378	29,558	1,699
Connecticut	538	10	23	6,396	37,339	1,746
Delaware	118	12	32	5,138	31,605	349
District of Columbia	91	– 9	96	5,643	37,504	337
Florida	1,947	25	35	4,353	26,648	6,104
Georgia	1,280	19	39	3,715	28,038	3,192
Hawaii	198	12	77	3,859	30,778	516
Idaho	223	– 4	7	2,778	22,860	475
Illinois	2,144	2	30	4,285	31,195	5,766
Indiana	1,072	– 4	11	3,616	28,564	2,817
Iowa	523	–11	5	4,159	25,884	1,500
Kansas	462	1	14	4,274	27,401	1,277
Kentucky	728	– 8	11	3,444	24,920	1,710
Louisiana	924	– 2	43	3,148	22,470	1,921
Maine	220	6	2	4,427	24,933	598
Maryland	801	19	40	4,895	33,700	2,465
Massachusetts	932	10	16	5,466	31,670	3,144
Michigan	1,778	– 1	24	4,306	34,419	4,580
Minnesota	795	7	6	4,390	31,500	2,327
Mississippi	574	2	56	2,716	22,036	1,144
Missouri	942	6	17	3,641	25,981	2,593
Montana	159	– 7	7	4,061	24,414	401
Nebraska	303	– 3	9	3,600	24,203	817
Nevada	184	16	23	3,800	28,840	587
New Hampshire	194	27	2	4,148	26,703	606
New Jersey	1,302	18	31	6,933	32,923	3,978
New Mexico	315	33	57	3,880	25,205	688
New York	3,081	1	32	6,886	36,500	8,522
North Carolina	1,187	9	32	3,639	25,650	3,343
North Dakota	131	–10	8	3,390	22,249	329
Ohio	2,049	– 4	17	3,852	29,152	5,328
Oklahoma	635	– 1	21	3,130	22,000	1,533
Oregon	496	2	10	4,574	29,500	1,408
Pennsylvania	2,057	– 4	16	5,099	30,720	5,780
Rhode Island	164	8	12	5,376	34,233	526
South Carolina	690	4	45	3,340	25,060	1,680
South Dakota	140	2	9	3,173	20,480	358
Tennessee	921	– 2	23	3,092	25,619	2,351
Texas	3,498	13	49	3,722	26,513	8,308
Utah	452	12	6	2,632	23,023	759
Vermont	101	11	2	4,791	26,861	298
Virginia	1,040	16	27	4,436	29,056	3,093
Washington	842	4	15	4,023	29,176	2,295
West Virginia	364	–18	4	3,693	21,904	743
Wisconsin	916	– 1	13	4,948	31,046	2,575
Wyoming	102	– 2	9	5,503	27,685	232

[a]Includes elementary and secondary public schools.
[b]Based on workers covered under federal and state unemployment insurance programs.
[c]NA indicates data are unavailable; asterisk indicates data are for 1986.
[d]Annual benefit for retired workers only.

SOURCES:

Population Ages 5-17 and 65+ – U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 1017 and 1044.

Minority School Enrollment – U.S. Department of Education, State Education Performance Chart, Office of Planning, Budget and Evaluation.

Student Expenditures and Teacher Salaries – National Education Association, *Estimates of School Statistics*, 1988-1989.

Total Labor Force, Women, and Older Workers – Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment*, 1988, and unpublished data.

Manufacturing and Service Sector Jobs 1983-2000 – Bureau of Economic Analysis, *State Projections to 2035*, 1985.

Average Annual Pay – Bureau of Labor Statistics, news release USDL 89-415.

Social Security Benefit – U.S. Social Security Administration, *Quarterly Social Security Bulletin*.

OLDER POPULATION

% WOMEN IN LABOR FORCE 1988	% CHANGE IN NUMBER OF JOBS 1983-2000	NUMBER OF NEW JOBS IN MANUFACTURING/SERVICES 1983-2000 (in 1000s)	AVERAGE ANNUAL PAY[b] 1988	POPULATION AGE 65+ 1988 (in 1000s)	% POPULATION CHANGE AGE 65+ 1988-2000	% POPULATION AGE 65+ IN LABOR FORCE[c] 1988	AVERAGE SOCIAL SECURITY BENEFIT[d] 1987	
57	29	4,499/14,046	$21,871	30,387	15	12	$6,180	U.S.
51	20	85/113	19,003	513	14	11	5,592	AL
64	55	8/50	28,033	20	45	NA	6,228	AK
56	70	129/339	20,383	447	47	NA	6,240	AZ
53	30	69/99	17,023	350	10	9	5,448	AR
57	38	662/2,010	24,124	3,011	27	13	6,276	CA
62	51	105/341	21,472	314	24	NA	6,024	CO
60	37	111/262	26,244	435	11	14	6,732	CT
62	21	13/30	21,977	77	26	12	6,420	DE
67	15	2/87	30,254	77	8	14	5,304	DC
55	50	204/975	19,520	2,201	39	10	6,144	FL
60	31	126/320	20,501	637	30	14	5,616	GA
60	32	3/86	20,444	114	55	17	6,024	HI
57	34	23/59	17,648	118	3	11	6,000	ID
56	20	58/622	23,606	1,421	3	12	6,552	IL
59	23	141/196	20,437	680	5	12	6,444	IN
62	17	41/115	17,928	423	− 6	13	6,192	IA
60	23	57/117	19,030	338	6	16	6,276	KS
51	21	55/114	18,545	463	7	11*	5,592	KY
50	26	67/215	19,330	479	6	10*	5,724	LA
57	21	19/49	18,347	181	7	14	5,664	ME
62	22	38/227	22,500	498	22	12	6,156	MD
60	34	208/444	24,143	806	6	13	6,192	MA
56	22	183/352	24,193	1,076	5	8	6,564	MI
63	33	143/288	21,461	540	7	14	5,988	MN
51	23	63/85	16,522	321	12	11	5,232	MS
58	21	64/256	20,295	710	8	12	5,988	MO
59	30	8/48	16,957	103	− 1	15	6,012	MT
61	26	22/96	17,190	221	3	12	6,060	NE
66	59	14/143	20,556	113	24	NA	6,168	NV
63	46	47/85	20,749	123	21	12*	6,180	NH
56	30	71/514	25,748	1,009	18	12	6,720	NJ
54	37	15/91	18,259	155	31	NA	5,808	NM
51	21	123/1,058	26,347	2,328	6	11	6,600	NY
60	25	146/263	18,637	775	28	12	5,664	NC
60	24	5/36	16,508	90	− 4	NA	5,796	ND
55	19	96/471	21,500	1,372	5	10	6,336	OH
55	25	76/153	19,098	422	7	12	5,844	OK
59	37	70/178	19,637	381	− 2	NA	6,276	OR
52	15	53/470	21,485	1,793	1	9	6,384	PA
61	27	17/60	20,206	146	4	7*	6,144	RI
57	26	83/129	18,009	379	23	12	5,676	SC
60	23	15/34	15,424	100	2	18	5,640	SD
54	26	94/223	19,209	612	16	13	5,652	TN
59	36	439/1,032	21,130	1,868	28	14	5,928	TX
59	50	59/123	18,910	141	17	NA	6,264	UT
63	36	21/35	18,640	86	6	13	6,048	VT
61	26	91/296	21,052	640	23	12	5,760	VA
60	39	111/319	20,806	551	6	NA	6,384	WA
41	23	13/63	19,341	268	− 5	5*	6,072	WV
62	24	131/235	19,743	641	2	12	6,312	WI
60	45	4/39	19,097	45	− 9	16	6,204	WY

REVIEW PANEL

Don M. Blandin
Director
Business-Higher Education Forum

Thomas J. Espenshade
Professor of Sociology
Office of Population Research
Princeton University

Robert A. Harootyan
Director
New Roles in Society
American Association of Retired Persons

Harold L. Hodgkinson
Director
Center for Demographic Policy
Institute for Educational Leadership

F. Ray Marshall
Professor of Economics and Public Affairs
University of Texas

Karen Pittman
Director
Educational Improvement and Adolescent Pregnancy Prevention
Children's Defense Fund

Alan V. Reuther
Associate General Counsel
United Auto Workers

Isabel V. Sawhill
Senior Fellow
The Urban Institute

Rocco C. Siciliano
Co-chairman
Subcommittee on Demographics and Jobs
Committee for Economic Development

Rafael Valdivieso
Vice President for Research
Hispanic Policy Development Project

Linda J. Waite
Senior Sociologist
Population Research Center
The RAND Corporation

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America in the 21st Century

INFRASTRUCTURE NEEDS

A publication of the Population Reference Bureau, Inc.

PRB

America in the 21st Century

INFRASTRUCTURE NEEDS

From time to time, the news media captures the tragic tale of a bridge collapse, a major water main breakage, or simply the daily frustrations of commuter traffic. These events are often cited as evidence that America has ignored its infrastructure problems for too long, underspent on needed repairs, and postponed investment. Some analysts argue that these past-due bills could undermine the economic prosperity of the nation in the 21st century.

While much of the traditional infrastructure debate centers on structural engineering problems and mechanisms to finance America's infrastructure projects, demographic forces are a fundamental but sometimes overlooked element in shaping infrastructure needs and our capacity to meet them. Gaining a better understanding of the scope and depth of demographic changes, their interrelationships, and the effects that they have on social and economic events will help us deal more effectively with these forces now and in the next century.

This report is part of a series of publications on "America in the 21st Century" prepared by the Population Reference Bureau under a grant from the Ford Foundation. The series highlights the importance of demographic change in shaping our local communities and world environment as we enter the next century. This report looks at America's infrastructure needs and its linkages to demographic trends, especially as these relate to transportation and housing. Other reports in the series include:

- A Demographic Overview
- Human Resource Development
- Social and Economic Support Systems
- Environmental Concerns
- Governance and Politics
- A Global Perspective

Together, these reports cover a broad range of issues and interrelated topics. They are designed to inform the reader about the interaction between demographic trends and public policy considerations and to challenge our thinking about the kind of world we are likely to face as we enter the 21st century.

INFRASTRUCTURE AND DEMOGRAPHICS

The term "infrastructure" generally refers to large public works, such as roads, bridges, waterworks, and sewage systems, but it also is used at times to describe all of America's "built environment," including housing, schools, hospitals, prisons, museums, theaters, and public buildings. The broader definition, which includes private construction, is occasionally employed because construction and maintenance of these facilities are closely linked to various government regulations, incentives, or subsidies, and to general economic development policies.

From a demographic perspective, infrastructure needs (and our ability to pay for them) are influenced by changes in where people live and work, migration patterns, consumption and lifestyle patterns, the age of the population, and income levels. Current demographic trends that will affect the demand for and affordability of infrastructure facilities as we move toward the 21st century include:

▲ **Maintaining a strong infrastructure is vital to America's future economic growth and productivity.**

- **Interstate Migration Patterns.** Large numbers of Americans have moved from the old industrial cities of the Northeast (sometimes called the *frostbelt*) to the growing areas of the South and Southwest (sometimes called the *sunbelt*). Those communities receiving migrants generally require new homes, roads, and other construction. Those places left behind may experience empty houses and underused schools.

- **Movement to the Suburbs.** The most rapid population growth is occurring around the fringes of urban areas, often on beltways or interstate highways. New housing, shopping malls, and work places tax existing transportation systems, creating gridlock in some areas.

- **Relocation of Jobs.** Loss of population and employment in many large, older cities is making it difficult to maintain existing infrastructure facilities through local tax revenues.

- **Consumer Attitudes and Trends.** Rising economic expectations and changing lifestyles of many middle-class people have put more automobiles on the road and increased the demand for bigger, more luxurious homes.

- **Aging of the Population.** Members of the large post-World War II baby boom generation (born between 1946 and 1964) are now entering their peak earning years and will provide steady demand for upscale homes and related infrastructure. The relatively small generation born during the 1970s will hit the housing market during the next two decades, so the demand for starter homes should subside. As baby boomers begin to retire in the early part of the 21st century, it may again require significant adjustments in the housing market.

This report begins by looking at government spending on infrastructure at the federal, state, and local levels. It then examines two major areas of infrastructure that are closely linked: transportation and housing needs. When transportation systems (such as new roads) bring new areas within commuting distance of job sites, residential construction generally follows. On the other hand, a rapid increase in residences can clog commuting routes and reduce the efficiency of transportation systems. A final section discusses several linkages between demographic trends and issues that will shape the debate on our infrastructure needs for the 21st century.

POPULATION CHANGE AND PUBLIC SPENDING

During the 1980s, a series of studies challenged our complacency about America's infrastructure. These studies portrayed a recent history of neglect in construction and upkeep of public works, and argued that the country faced a looming infrastructure crisis. As the Congressionally mandated National Council on Public Works Improvement concluded, "the quality of America's infrastructure is barely adequate to fulfill current requirements, and insufficient to meet the demands of future economic growth and development."

Some observers, however, downplay the seriousness of the situation. They argue that the infrastructure problem is of manageable proportions, that dollar estimates of need have been inflated, and that civic wish lists have been taken at face value rather than being scrutinized as to the costs and benefits of specific projects.

Nevertheless, policy makers at the federal, state, and local levels of government are concerned about the serious problems identified in the studies, for example:

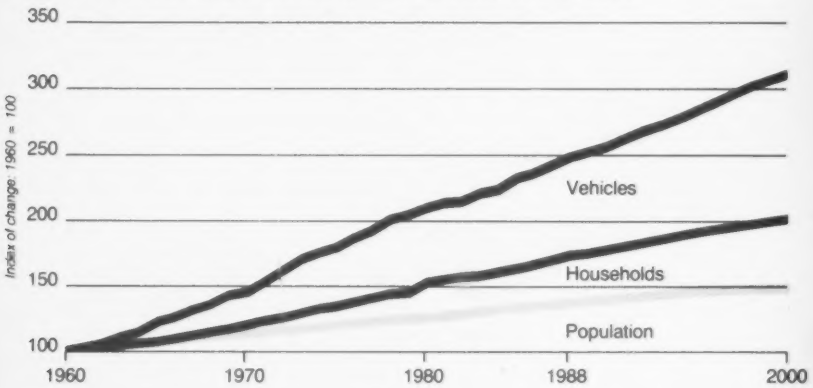
- A large segment of our streets and highways are deteriorating.
- Gridlock traffic conditions exist in a growing number of areas.
- Nearly half of our bridges need repair.
- The water storage and distribution systems in some older urban areas have seriously deteriorated.

- Sewage treatment capacity in many areas is in short supply.
- A shortage of affordable housing exists in many areas of the country.

While numerous demographic forces have affected our infrastructure needs, two variables that are closely linked to infrastructure — vehicles and households — both increased at a faster rate than the population during the past three decades. Figure 1 contrasts the growth of vehicles and households with population growth, using a scale in which 100 represents the number of vehicles, households, and people in 1960. Between 1960 and 1988, the population of the U.S. increased by slightly more than one-third, reaching 137 on the scale. During the same period, however, the number of households grew by more than two-thirds (173 on

Figure 1.

GROWTH OF POPULATION, HOUSEHOLDS, AND VEHICLES: 1960 TO 2000



SOURCE: U.S. Bureau of the Census and U.S. Department of Transportation

the scale), and the number of vehicles more than doubled (248 on the scale). By the year 2000, the population is projected to increase to just 50 percent over the 1960 level, while the number of households is expected to double, and the number of vehicles more than triple. These demographic facts form a backdrop against which to view the patterns of infrastructure spending.

In 1987, the U.S. spent $113 billion on major infrastructure systems. This total included $70 billion on highways, bridges, and mass transit; $19 billion on water supply; $9 billion on airports and aviation; $8 billion on water resources, and $7 billion on disposing solid waste. This is a large sum (2.5 percent of our Gross National Product, 6 percent of all government expenditures, and $475 per person), but not enough, some observers say, to meet emerging needs.

Between 1960 and 1987, per capita government expenditures for infrastructure rose by 39 percent in

constant dollars, but the increase has been uneven over time. During the 1970s and early 1980s per capita expenditures on infrastructure leveled off and even fell a little. In 1982, per capita expenditures were only about 90 percent of their 1972 levels. Although spending increased by 20 percent between 1982 and 1987, many analysts feel that this was not enough to make up for the lag witnessed during the 1970s. Furthermore, the slightly declining level of infrastructure expenditures seen in the 1970s stands in stark contrast to the dramatic growth in households and vehicles during this period as shown in figure 1.

Some argue that the downturn in the rate of infrastructure investment during the 1970s and early 1980s was a natural result of the fact that major portions of the nation's infrastructure system had already been completed by the 1970s. For example, by 1970, 96 percent of our current highway mileage was already in place, and most major cities had completed construction of their airports, sewers, and water supply systems. We might expect a certain slackening of investment under these conditions.

Most experts agree, however, that the dip in public infrastructure investments in the 1970s reflected more than a diminished need for new construction. The yearly investment in public works fell so low in the late 1970s and early 1980s that the real per capita value of infrastructure began to decline. In other words, our infrastructure was wearing out faster than we were replacing it so the overall value of what we had was declining.

▲ States and localities are spending an increasing share of their budget on road work and other infrastructure projects.

Who Pays: Intergovernmental Responsibilities

Local governments have always paid the lion's share of infrastructure costs, but today they are bearing more of the load than in previous decades. In 1960, 41 percent of public spending on

infrastructure was made by local governments, compared to 53 percent in 1987 (see figure 2). The federal share was 31 percent in 1960, peaked at 36 percent in 1976, and fell to 23 percent in 1987. State spending declined from 29 percent in 1960 to 24 percent in 1987.

The shifting of costs to local governments is important, because population size and income levels are more diverse and more volatile at the local level than they are at the state or national level. The trend to let local governments pay is likely to exacerbate the problems of declining areas where the tax base is already strained, while rapidly growing areas may lack the political organization, legal structure, or expertise to cope with escalating demands. The situation in Detroit (where population declined by 14 percent between 1980 and 1988) is very different than that in Los Angeles (where population grew by 13 percent during this period), yet both cities must provide basic infrastructure services to their people.

The policies of earlier decades, which spread the costs of infrastructure somewhat more evenly across the various levels of government, helped to mitigate the impact of local demographic patterns. But to the extent that the federal government remains constrained by debt and the desire to minimize domestic spending, state and local officials will increasingly be the ones to wrestle with infrastructure questions.

TRANSPORTATION

Our transportation system is a central component of the nation's infrastructure. Roads, streets, highways, bridges, railroads, waterways, and airports not only provide personal mobility, they also allow efficient movement of goods through the economy. The latter is vitally important for the business sector and a key to our competitiveness internationally.

While individuals and private firms account for most of our expenditures on transportation, the public sector also invests heavily in transportation. Public transportation assets include:

- 3.8 million miles of roads and highways;
- 5,700 public-use airports;
- 10,000 subway cars, trolley coaches, and other commuter transit cars;
- 10,000 buses and associated facilities;
- 44,000 miles of interstate highway; and
- more than 575,000 bridges.

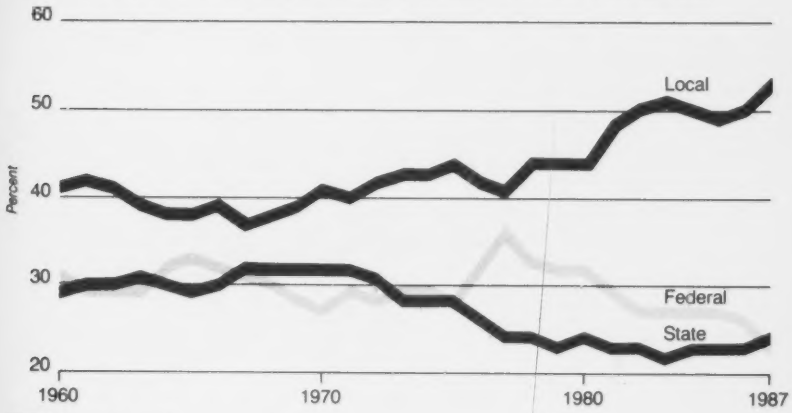
The demand for transportation facilities has grown dramatically since 1960, pushed by population growth and other demographic trends, such as rapid increase in real incomes (making it

possible for more people to buy more cars); the large, post-World War II baby boom generation reaching driving age; and the increased movement of women into the work force swelling the numbers of people who move between home and a work site each day. The demands of child care and household tasks plus a job make an automobile an absolute necessity for many working women.

Changing Patterns of Urban Growth

Changes in the location of housing and jobs in urban areas are reshaping the types and location of transportation services needed by society. The suburban rings around major cities are growing

Figure 2.
PERCENTAGE OF GOVERNMENT SPENDING ON INFRASTRUCTURE: 1960 TO 1987



SOURCE: Apogee Research

more rapidly in both jobs and population than are central cities or rural areas. Almost three-quarters (72 percent) of metro area population growth between 1980 and 1986 occurred in suburbs and approximately two-thirds of all new jobs are emerging in the suburbs. Commuting between one suburb and another is far more common now than commuting between suburbs and the city's central business district. Retail and other commercial development is now centered on major thoroughfares outside of big cities. The beltways and shopping malls that ring our major cities have become the main streets of the 1990s.

Patterns of metropolitan growth tend to vary by geographic region, as table 1 indicates. In the old metropolitan areas of the Northeast and Midwest, central city populations declined between 1960 and 1988, while the surrounding suburban communities grew. However, in the newer metro areas of the South and West, both city and suburban populations experienced growth, although the suburbs generally grew much more rapidly than the city.

Table 1.
CITY AND SUBURBAN GROWTH IN LARGEST U.S. METROPOLITAN AREAS: 1960 TO 1988

	Population 1988	Change in population, 1960–1988		
		Total	City	Suburbs
Metropolitan Area		(Numbers in thousands)		
New York	18,120	7,425	−429	7,854
Los Angeles	13,770	7,731	874	6,857
Chicago	8,181	1,960	−572	2,532
San Francisco	6,042	3,393	− 8	3,401
Philadelphia	5,963	1,620	−356	1,976
Detroit	4,620	858	−634	1,492
Boston	4,110	1,001	−119	1,120
Dallas/Fort Worth	3,766	2,647	307	2,340
Washington, D.C.	3,734	1,670	−147	1,817
Houston	3,642	2,224	760	1,464
Miami	3,001	2,066	79	1,987
Cleveland	2,769	860	−355	1,215
St. Louis	2,467	362	−346	708
San Diego	2,370	1,337	497	840
Phoenix	2,030	1,366	485	881

SOURCE: U.S Bureau of the Census, *Current Population Reports*, Series P-26.

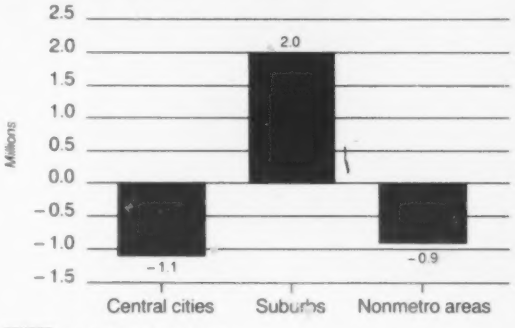
The new areas of development at the urban fringe are gaining population from both central cities and nonmetropolitan areas (see figure 3). Between 1986 and 1987, there was a net migration of almost 2 million people to suburbs: about half coming from central cities and half from nonmetro areas.

Many fast-growing communities have been hard-pressed to develop roads fast enough to keep pace with rising numbers of commuters. And, relatively sparsely-settled suburban areas make traditional mass transit systems (fixed route buses and subways) less efficient. In addition, the lag in infrastructure investment during the 1970s and early 1980s may be partly responsible for the inadequacies of the road systems in many rapidly growing areas. Fairfax County, Virginia, outside of Washington, D.C.; Orange County, California, south of Los Angeles; and Seminole County, northeast of

Orlando, Florida, are just three of the many fast growing auto-oriented areas where transportation has become a major political issue. Private toll roads are now under consideration in these areas as a means of enhancing transportation infrastructure.

When responding to public opinion polls, suburban residents frequently cite traffic congestion as the number one problem in their communities. In addition to personal inconvenience, travel delays in the nation's largest urbanized areas now cost an estimated 2 billion lost person-hours annually. This amounts to at least $7 billion a year in wasted time, in addition to the costs of extra fuel consumption and environmental pollution from auto emissions.

Figure 3.
NET MIGRATION FROM 1986 TO 1987: CENTRAL CITIES, SUBURBS, AND NONMETRO AREAS



SOURCE: U.S. Bureau of the Census.

Current patterns of urban growth make the task of rebuilding the roads and bridges of older cities more difficult. Between 1980 and 1988, 77 percent of major cities (100,000 or more people) in the Northeast and 59 percent of those in the Midwest lost population. Many also lost employment. The loss of population and businesses in some older cities has eroded the tax base needed to maintain public facilities and build new transportation systems. Many of these financially hard-pressed cities postponed needed maintenance to their public infrastructure in the 1970s because of a lack of funds.

Transportation infrastructure is also an issue for low-income minorities living in central cities who have difficulty gaining access to the emerging jobs in the suburbs. The problem is especially acute for those who do not have access to a vehicle. In 1980, nearly 40 percent of all black households in central cities reported that they had no vehicle available. While it is probably responsible for only a fraction of the high unemployment rates of inner-city blacks, the lack of public transportation from inner city neighborhoods to suburban job sites could become more of a political issue in the 1990s as labor markets tighten. Many businesses in suburban locations are experiencing labor shortages, prompting some employers to operate private van services or develop other transportation strategies for their employees.

Demographic shifts also affect the prospects for upkeep of rural roadways. The vast majority of our road mileage (81 percent) is located in rural areas, but only 27 percent of the population lives

outside of metropolitan areas (down from 44 percent in 1950). Since most infrastructure expenditures are made by local units of government, the dwindling tax base in these areas will make it harder to find the funds to maintain rural roads.

In many ways, roads in nonmetro areas serve the country as a whole. They transport the products of rural economies to urban consumers and serve as the first leg in the journey to international market places. These roads are also used for vacation and recreational travel. Tourism and recreation is a major industry in many parts of the country and accounts for about one-third of all automobile travel in the U.S. Nonetheless, it may be hard to justify spending state and federal funds for roads in areas that house increasingly fewer people. Already some analysts are suggesting that we lower standards for some portion of rural roadways in order to cut expenditures.

▲ In 1980, nearly 40 percent of all black households in central cities did not own an automobile.

Changing Commuting Patterns

Lifestyle changes and emerging patterns of development in metro areas have brought shifts in commuting patterns. The share of commuters driving alone rose from 65 percent in 1975 to 72 percent in 1985. In contrast, during the same period, the share of workers who car pool or use public transportation fell from 25 percent to 19 percent. As work places become more scattered across suburban and exurban areas — an environment in which mass transit rarely operates — these commuting trends are likely to increase and lead to more traffic congestion.

Some observers speculate that the shift from a manufacturing to a service economy, combined with advances in computers and telecommunications, will decrease the numbers of commuters by allowing more people to work at home, but the share of people who *usually* work at home remained at 3 percent between 1975 and 1985.

In the 1980s, several metropolitan areas (Miami, Washington, D.C., Atlanta, and Portland, Oregon, for example) attempted to provide alternate modes of travel by investing in mass transit systems. These new systems required enormous financial investments (generally much higher than initial estimates). Overall ridership, however, has been generally disappointing and the availability of public transit has not reduced traffic congestion. In general, the percentage of commuters using public transportation for work has declined steadily over the last few decades, dropping from 13 percent in 1960 to 5 percent in 1985 (the most recent data available).

Various suggestions have been offered to encourage ride-sharing or use of public transit and to discourage solo car commutes. These include:

- Increase the gas tax.
- Stimulate private sector participation in transit services.
- Designate high-occupancy vehicle lanes to encourage ride-sharing on major commuter routes.
- Operate public van pools to provide more flexible service.
- Increase the use of small feeder bus systems that will connect suburban neighborhoods with urban mass transit systems.
- Tax employer-provided parking benefits.

▲ Almost three-quarters of all commuters drive to work alone.

Some observers look to the heavily-used European public transportation systems as a possible model for solving our traffic problems. However, European cities have much higher population densities and more concentrated employment centers, which make mass transit more practical. Many of them began as medieval cities, and their ancient narrow streets greatly discourage automobile travel. Furthermore, gas is much more expensive in Europe than in the U.S. In Belgium, Great Britain, and West Germany, for example, gasoline prices average around $2.60 per gallon. In Spain, gasoline sells for approximately $3.50 per gallon.

The opportunity to drive alone to work provides enormous personal mobility, but it requires more investments in roads, contributes to environmental problems, and increases our dependence on foreign oil. The longer current patterns of urban development continue, the more difficult it will be to make alternative transportation systems viable. The traditional fixed-route, fixed-schedule transit systems function most economically in densely populated areas rather than in sprawling exurban growth areas so characteristic of today. In the future, policy makers will have to examine more closely costs and benefits of alternative transportation systems.

HOUSING

During the 1980s, a rapid rise in the cost of housing, a declining rate of home ownership among young adults, a perceived increase in the homeless population, and cutbacks in federal housing funds increased concern about America's housing situation. Shifts now underway in the U.S. population suggest that demographic trends may be key factors in addressing our housing dilemma in the 1990s and early 21st century.

While housing is not always included in infrastructure discussions, we focus on it here for three reasons:

- The demand for various public and private infrastructure systems (such as streets, sidewalks, electrical lines, water and sewer systems, and schools) is closely tied to the changes in the number of households and residential patterns.
- Housing represents a major segment of our built environment, and is heavily influenced by public policy decisions.
- Demographic changes have an enormous impact on housing demand.

▲ **Building energy-efficient homes today will improve our housing stock for the 21st century.**

Growth in Number of Households

Although households will continue to grow more rapidly than population over the next decade, as previously shown in figure 1, the *rate* of growth is expected to slow. The number of households grew by 20 percent in the 1960s and 27 percent in the 1970s. The U.S. Census Bureau projects that the number of households will grow by only 12 percent during the 1990s. This slowdown is primarily the result of the so-called *birth dearth* of the 1970s. During that decade, the U.S. averaged 3.3 million births per year, compared with 4.1 million per year during the 1950s.

The number of households increased dramatically during the 1960s and 1970s, for three reasons:

- Members of the large baby boom generation reached the age when they left their parents home and established homes of their own.
- A strong economy enabled young adults to marry young and purchase a home of their own.
- The increase in separation and divorce often converted a single household into two households.

Most of the new construction created by the entrance of the baby boom into the housing market is now past. The rise in the number of single-parent families shows no sign of decline, but their low average income will limit their ability to purchase a home.

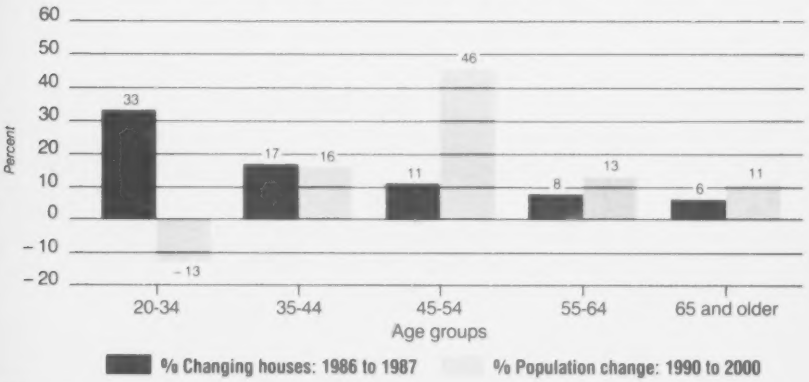
Because young adults are the most likely to move, the aging of the population also is likely to slow demand for housing (see figure 4). The number of adults under age 35 will decrease by 13 percent in the 1990s, while the number of people age 45 to 54 will increase by 46 percent. Lower mobility rates could dampen the demand for new housing and thereby reduce the need for building new roads and other infrastructure facilities. The 1990s, therefore, could provide a window of opportunity for communities to make up for past

underinvestment in housing-related infrastructure and plan for future needs.

But the trend toward larger and more upscale homes may offset some of the expected decrease in infrastructure demands. Between 1970 and 1987, the average square footage of a new house increased by 27 percent – from 1,385 to 1,755 square feet. Much of the demand for these upscale homes comes from members of the baby boom generation, who are entering their 30s and 40s and moving up from a starter home to a more ample one. During the 1990s, baby boomers will be in their peak earning years, and therefore could provide demand for upscale housing well into the early part of the 21st century.

Today's larger, more spacious homes are likely

Figure 4.
GEOGRAPHIC MOBILITY AND POPULATION CHANGE AMONG U.S. ADULTS



SOURCE: U.S. Bureau of the Census

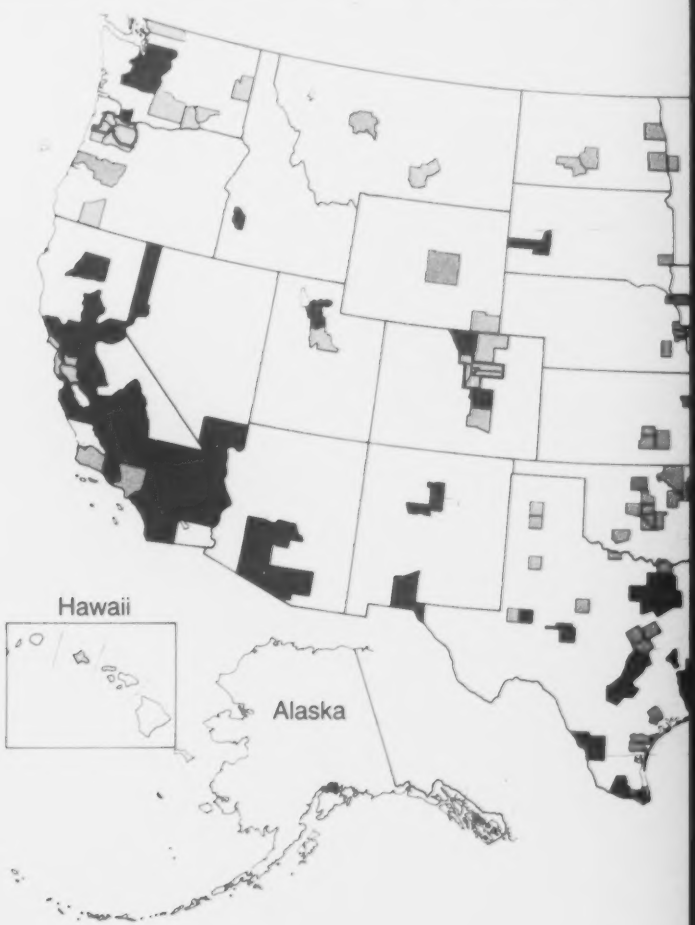
to place greater demands on infrastructure services. For example, larger houses typically require more electricity for lights, heating, and air-conditioning than smaller homes. This trend may be offset to some extent by use of more efficient technologies. However, the monthly electrical bill for houses built between 1981 and 1985 was 18 percent higher than the average U.S. home. As older, smaller houses are abandoned or demolished and newer, bigger ones are built, the overall profile of our housing stock is likely to demand more utilities and services. The houses we build today will be a part of the housing stock of the 21st century. We therefore need to implement building and construction policies that encourage the use of energy efficient technologies or else we will be paying more later in energy costs, housing renovation costs, and wasted resources.

Changing Housing Markets

Today, the housing market is becoming increasingly segmented into diverse spheres that operate more or less independently from one another. Several interrelated trends have contributed to this segmentation:

- **Household types are changing.** Single-parent and non-family households are increasing faster than married-couple households.
- **The population is aging.** This means more elderly people, fewer young adults, and a large, baby boom generation that is advancing into middle age.
- **The economic status of a large segment of households has improved.** A group of upscale consumers has emerged, who demand bigger and more luxurious homes.
- **Many people are being priced out of the housing market.** At the same time, the number of families who cannot afford to purchase a home is increasing.

Figure 5.
PATTERNS OF POPULATION GROWTH IN METROPOLITAN AREAS: 1980 TO 1988

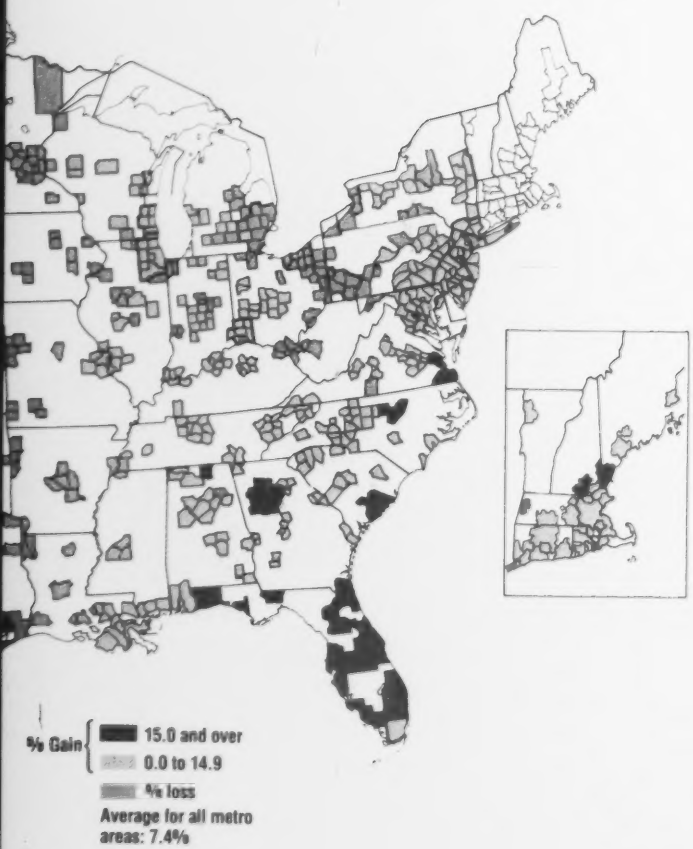


SOURCE: U.S. Bureau of the Census

- **Population and economic growth vary from locality to locality.** This means that some metro areas are growing rapidly -- driving up housing prices, while in stagnant areas, housing prices are not appreciating.

- **Racial segregation segments markets.** Minorities often operate in separate housing markets, due, in part, to low economic status, but also to the continued practice on the part of some real estate agents to steer minority clients to certain segregated neighborhoods.

To a large extent, local demographic factors dictate the supply and demand for housing. Because the U.S. is a highly mobile society, the demand for and turnover of housing stock can be rapid in some areas. Between 1980 and 1985, about 42 percent of the population changed residences. Each year about one in five people moves. Throughout the 1980s, most of the growth has been concentrated in metropolitan areas of the South and West (see figure 5).



Residential mobility creates demand for housing in some markets and excess housing in other markets. Between 1980 and 1988, the number of households, for example, in Arizona grew by 34 percent and in Texas by 22 percent. In contrast, Michigan experienced only a 6 percent increase in households and the District of Columbia a 2 percent decline (see state data table, pp. 22-23). However, vacant or cheap housing units in Michigan do not help those looking for housing in Arizona. National, regional, and even state housing data often mask very diverse situations regarding the availability and price of housing in local communities.

Home Ownership and Affordability

Governments are feeling new pressures to intervene in the housing market. The steep rise in housing prices during the 1970s and 1980s, coupled with the declining wages of young workers have resulted in what is often termed an *affordability crisis*. Home ownership rates for people in all age groups under 40 fell by at least 5 percentage points between 1973 and 1988. As this group moves through the life cycle, some analysts fear that their home ownership rates will not reach those of previous generations.

▲ **Dual-earner couples and affluent baby boomers have increased demand for large, upscale housing.**

To some extent, the lower home ownership rates of today's young adults relative to those of a generation ago reflect demographic factors as well as income. Many of today's young adults are postponing marriage and/or childbearing, so that

they are not as likely as previous generations to be in the market for a home. In 1960, only 10 percent of women in their late 20s had never been married, but by 1988, that figure had increased to 30 percent. Furthermore, persons who do get married in their early 20s tend to be blue-collar and service workers whose wages sometimes are not sufficient to purchase a house in many of the housing markets around the country.

Experts disagree on how long today's affordability crisis will last. One assessment of housing needs concluded that "a total of 36 million units needs to be built or upgraded by the year 2002." But other analysts suggest that the steep rise in prices observed during the late 1970s and early 1980s is leveling out. Because the number of young adults who will enter the housing market for the first time during the 1990s will be smaller than in the recent past, the demand for housing may slow, thereby bringing down housing prices. This could ease the affordability crisis and lessen pressure on government to intervene.

Most major cities already have long waiting lists for public housing but the 1990s are likely to bring additional pressures. A large share of public housing units are approaching an age when heating, water, and electrical systems will have to be replaced. Also, many low-income housing developments that are privately owned were financed through government loan subsidies under contracts that required the builders to provide reduced-price rental units for 30 or 40 years. A large number of these contracts will end in the 1990s, and it is likely that some of the units will be converted to high-priced condominiums, while others could be abandoned.

ISSUES FOR THE 1990s

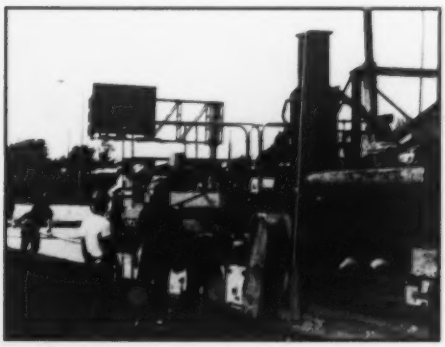
As we move toward the 21st century, the U.S. will be confronted with a variety of problems and opportunities regarding its public infrastructure. Demographic changes now underway will be important factors in defining the problems, shaping the solutions, and determining our ability to carry out needed public policies. At least four issues will impact on the development of infrastructure policies:

- **Human Resources.** While we tend to think of the infrastructure in physical terms, such as streets, bridges, water lines, sewers, and housing, there is also a very important human element. Enrollments in schools of civil engineering — the traditional mainstay of the public works profession — have declined in recent years, just as many senior engineers are reaching retirement age. The number of people receiving undergraduate degrees in civil engineering fell from 10,500 in 1981 to 7,700 in 1988 — a 27 percent drop in just seven years.

With a smaller number of young people entering the labor force in the 1990s, the supply of workers to perform physically demanding construction and public works' tasks also is likely to decline. This might lead to more intensive use of capital and technology to make work less physically demanding and workers more productive.

Competition for scarce labor is likely to force wages up. If municipalities cannot find a sufficient number of civil engineers or construction workers in the U.S., they may turn to labor markets abroad. Potential labor shortages will spur debate on revising U.S. immigration policies to fit perceived labor needs.

- **Financing.** It is widely accepted that the U.S. needs to put more money into its infrastructure systems. The key issue is where that money will come from. Given the large federal budget deficit and the current anti-tax political climate, it is unlikely that federal funds will expand significantly in the near future. For the most part, states and localities will probably need to finance public works through their own efforts. Demographic factors such as population growth, composition, and distribution which shape a community's demand for infrastructure, also help determine its capacity to raise funds. Among the possible options are:



▲ Labor shortages could make it more difficult to find young workers for public works projects in the future.

Property taxes. Although increasing the property tax is seldom a welcome alternative, it may be a realistic option for financing infrastructure in growing communities. But for many communities, including large declining central cities, increasing property taxes may not be feasible.

Gasoline Tax. An increase in tax on gasoline could provide additional revenue for transportation related projects. However, an increase in the gas tax might be resisted because it would hit low-income consumers the hardest.

Borrowing. Traditionally, state and local jurisdictions issued tax-exempt bonds to raise funds for infrastructure projects. However, some analysts believe that tax-exempt bond markets do not have sufficient capacity to handle the volume of borrowing that could result from growing infrastructure needs. The Tax Reform Act of 1986 limited the purposes for which tax-exempt borrowing can be undertaken, making tax-exempt bonds less flexible than in the past. This provision may be reconsidered in light of the nation's infrastructure problems.

Impact Fees. In the past, developers generally limited their infrastructure construction to such tasks as paving streets and building

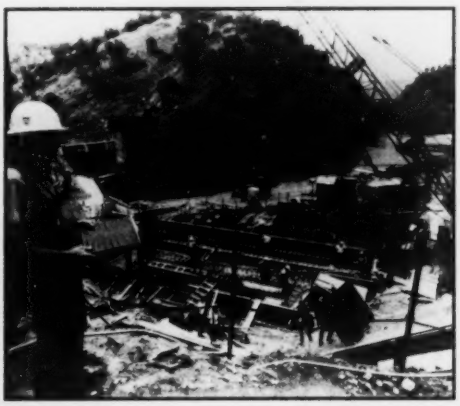
sidewalks *within* the boundaries of a development. Now, some local governments are levying impact fees that require developers to pay a greater share of infrastructure costs related to, but *outside* their development. This approach attempts to make those who will be the primary beneficiary of new infrastructure bear a substantial portion of the costs. While impact fees reduce public expenditures, they can raise the price of a new home by several thousand dollars, since developers often pass their costs on to home buyers. Such fees may exacerbate the housing affordability problem. Moreover, the success of impact fees is tied to the particular demographics of a locality. Fast-growing areas may successfully use this mechanism to offset infrastructure costs, but for communities where population and economic growth are stagnant, imposing impact fees may act as an additional barrier to development.

Toll Roads. Similarly, toll roads impose a user fee on the drivers who travel these routes. Data collected by the International Bridge, Tunnel and Turnpike Association in 1989 showed that 16 states were considering $8.5 billion worth of construction to add 882 miles of toll structures. Cash-short states, facing citizen demands for additional roads in densely populated areas, may find this mechanism particularly attractive. But critics point out that toll roads place an inequitable burden on low-income drivers who may not be able to afford even a modest toll fee. Long waits at toll booths waste fuel, add to air pollution, and lead to more, rather than fewer, disgruntled travelers. Electronic devices to make toll collection more efficient could face resistance because they eliminate jobs.

Special Tax Districts. Some states have allowed the creation of special districts – which may transcend town or county boundaries – to tax residents in order to provide certain kinds of services such as roads, fire stations, regional transit, and schools. Such arrangements are sometimes seen as more fair and equitable because the costs are paid by those who are most directly affected.

- **Environmental Concerns.** Population growth and rising standards of living have increased our need for infrastructure systems. But development has also contributed to environmental degradation. The American people are becoming more aware of the linkages between infrastructure development and the environment, and policy makers in the 1990s will need to place greater emphasis on balancing these two important issues.

Indeed, building more energy efficient homes and work places, or using more recycled products could reduce our need for more infrastructure. Some planners argue that land use regulations by governments to promote developments with homes, jobs, and shopping located close together would keep our future infrastructure bills lower. But their arguments will have to overcome lifestyle trends and public policy decisions that in the past have favored relatively unfettered development. Nonetheless, environmentally conscious policies are gaining in popularity and are likely to be a major factor in determining infrastructure developments during the 1990s.



▲ **Environmental concerns will play an importan. role in the design of future infrastructure projects.**

- **Intergovernmental Cooperation.** Infrastructure issues often transcend traditional town, county, and even state boundaries. Population shifts from one jurisdiction to another affects both areas, but not necessarily in equal proportions. Tracking demographic changes can help policy makers better understand the context and magnitude of infrastructure problems. While it is sometimes easy to form political consensus around the need to build and maintain infrastructure systems, implementing such decisions is a much harder task. Addressing infrastructure issues in a coordinated fashion may require a painful realignment of traditional lines of authority, funding arrangements, and mechanisms for accountability. Regional advisory groups or governing bodies are likely to become more prominent as problems associated with economic development and resource use cut across traditional political and jurisdictional boundaries.

In many ways, the 1990s could provide a much-needed opportunity for dealing with infrastructure problems. Because there were fewer births during the 1970s, the number of new drivers on the roads and mobility-prone young families in the housing market during the 1990s will be lower than in the 1970s and 1980s. Policy makers could take advantage of this respite to make up for past underinvestment in infrastructure and to anticipate future demands. A solid grasp of the demographic underpinnings of infrastructure needs during the 1990s and beyond is essential if we hope to maximize these opportunities.

BACKGROUND READINGS

Apgar, William C., Jr., et al., *The State of The Nation's Housing: 1989* (Cambridge, MA: Joint Center for Housing Studies, Harvard University, 1989).

Choate, Pat and Susan Walter, *America in Ruins: The Decaying Infrastructure* (Durham, NC: Duke Press Paperback, 1983).

Congressional Budget Office, *New Directions for the Nation's Public Works* (Washington, DC: U.S. Government Printing Office, 1988).

Fulton, William, "Land-Use Planning, A Second Revolution Shifts Control to the States," *Governing*, Vol. 2, No. 6 (March 1989).

Hansen, Royce, ed., *Perspectives on Urban Infrastructure* (Washington, DC: National Academy Press, 1984).

Lemov, Penelope, "Twilight for User Fees?" *Governing*, Vol. 2, No. 6 (March 1989).

Mankiw, N. Gregory and David N. Weil, *The Baby Boom, The Baby Bust, and the Housing Market*, Working Paper No. 2794 (Cambridge, MA: National Bureau of Economic Research, Inc., 1988).

National Academy of Engineering, *Cities and Their Vital Systems: Infrastructure Past, Present and Future*, Jesse H. Ausubel and Robert Herman, eds., (Washington, DC: National Academy Press, 1988).

National Council on Public Works Improvement, *Fragile Foundations: A Report on America's Public Works* (Washington, DC: NCPWI, 1988).

Pisarski, Alan E., *Commuting in America: A National Report on Commuting Patterns and Trends* (Westport, CT: The Eno Foundation on Transportation, 1987).

Small, Kenneth A., Clifford Winston and Carol A. Evans, *Road Work: A New Highway Pricing and Investment Policy* (Washington, DC: The Brookings Institution, 1989).

Stein, Jay M., ed., "Public Infrastructure Planning and Management," *Urban Affairs Annual Review*, Vol. 33 (Newbury Park, CA: Sage Publications, 1988).

Struyk, Raymond J. and Christopher Walker, *America's Housing Needs to the 21st Century* (Washington, DC: The Urban Institute, 1988).

U.S. Congress Joint Economic Committee, *Hard Choices: A Report on the Increasing Gap Between America's Infrastructure Needs and Our Ability to Pay for Them*, S. Prt. 98-164 (Washington, DC: U.S. Government Printing Office, 1984).

U.S. Department of Transportation, *Moving America: New Directions, New Opportunities*, Vol. 1, *Building the National Transportation Policy* (Washington, DC: U.S. Government Printing Office, 1989).

STATE DATA TABLE

	TOTAL POPULATION			HOUSEHOLDS[a]		HOUSING S
	1988 (in 1000s)	2010 (in 1000s)	% POPULATION CHANGE 1988-2010	1988 (in 1000s)	% CHANGE 1980-1988	1988 (in 1000s)
United States	248,239	282,055	14	91,538	14	1,486
Alabama	4,118	4,609	12	1,502	12	13
Alaska	527	765	45	176	34	1
Arizona	3,556	5,319	50	1,281	34	33
Arkansas	2,406	2,624	9	903	11	8
California	29,083	37,347	29	10,326	20	283
Colorado	3,317	4,009	24	1,266	19	13
Connecticut	3,239	3,532	9	1,204	10	10
Delaware	673	790	17	244	18	7
District of Columbia	604	672	11	248	− 2	1
Florida	12,671	17,530	38	4,922	31	171
Georgia	6,436	9,045	41	2,314	24	83
Hawaii	1,112	1,559	40	353	20	6
Idaho	1,014	1,079	6	363	12	3
Illinois	11,658	11,496	− 1	4,324	7	49
Indiana	5,593	5,409	− 3	2,077	8	26
Iowa	2,840	2,362	−16	1,087	3	7
Kansas	2,513	2,564	2	956	10	10
Kentucky	3,727	3,710	*	1,383	10	13
Louisiana	4,382	4,545	4	1,557	10	7
Maine	1,222	1,308	7	460	16	9
Maryland	4,994	5,688	21	1,696	16	40
Massachusetts	5,913	6,255	6	2,220	9	30
Michigan	9,273	9,097	− 2	3,394	6	45
Minnesota	4,353	4,578	5	1,619	12	20
Mississippi	2,621	3,028	16	919	11	7
Missouri	5,159	5,521	7	1,968	10	23
Montana	806	794	− 1	304	7	1
Nebraska	1,611	1,529	− 5	615	8	6
Nevada	1,111	1,484	34	417	37	31
New Hampshire	1,107	1,455	31	403	25	12
New Jersey	7,736	8,960	16	2,843	12	41
New Mexico	1,528	2,248	47	538	22	8
New York	17,950	18,139	1	6,800	7	55
North Carolina	6,571	8,164	24	2,444	20	80
North Dakota	660	611	− 7	248	9	2
Ohio	10,907	10,387	− 5	4,104	7	45
Oklahoma	3,224	3,511	9	1,239	11	5
Oregon	2,820	2,991	6	1,102	11	14
Pennsylvania	12,040	11,134	− 8	4,502	7	54
Rhode Island	998	1,096	9	373	10	5
South Carolina	3,512	4,205	20	1,225	19	23
South Dakota	715	722	1	268	10	2
Tennessee	4,940	5,500	11	1,852	14	33
Texas	16,991	22,261	31	6,016	22	40
Utah	1,707	2,171	27	524	17	6
Vermont	567	608	7	210	18	5
Virginia	6,098	7,410	22	2,228	20	60
Washington	4,781	5,292	11	1,817	18	40
West Virginia	1,857	1,617	−13	708	3	2
Wisconsin	4,887	4,713	− 3	1,819	10	24
Wyoming	475	487	3	176	6	1

[a]A household is all persons occupying one housing unit, including house, apartment, or single room.
[b]New housing units authorized by building permits or public contracts.
[c]Excludes privately-owned roads and highways.
[d]State expenditures; excludes local and federal financing.

* – CHANGE IS NEGLIGIBLE
NA – NOT APPLICABLE

SOURCES:

U.S. Population – U.S. Bureau of the Census, news release CB89-204 and *Current Population Reports*, Series P-25, No. 1017;
Households – U.S. Bureau of the Census, news release, CB89-73;
Housing Starts – U.S. Bureau of the Census, Construction Report Series C-40, annual 1985 and 1988;
Vehicles – U.S. Department of Transportation, unpublished data;
Total and Rural Road Miles – U.S. Department of Transportation, Highway Statistics 1988;
Transportation Budget – National Association of State Budget Officers, State Expenditure Report, 1989;
Capital Outlay – U.S. Bureau of the Census, State Government Finances, GF-88-3, 1989.

[3]	REGISTERED VEHICLES		ROADS[4]		STATE BUDGETS[4]		
% CHANGE 1980-1989	1989 (in 1000s)	% CHANGE 1980-1989	MILES 1989 (in 1000s)	% RURAL 1989	% TRANSPORTATION 1989	% CAPITAL OUTLAY 1988	
−10	188,669	21	3,371	81	10	12	U.S.
−20	4,075	39	96	82	9	13	AL
−60	367	40	12	83	16	8	AK
−24	2,785	45	70	84	11	20	AZ
−37	1,436	−9	77	90	13	11	AR
− 7	21,657	28	163	54	6	7	CA
−21	2,932	25	77	86	10	14	CO
−23	2,695	26	20	45	10	12	CT
89	529	33	5	80	13	14	DE
44	268	*	1	0	NA	NA	DC
−16	11,378	49	105	54	11	16	FL
−14	5,385	41	107	81	8	17	GA
16	719	26	4	75	15	14	HI
−25	953	14	61	95	15	17	ID
27	8,091	8	136	76	11	13	IL
10	4,265	11	92	80	10	13	IN
31	2,613	12	112	93	8	16	IA
−27	2,237	11	133	93	11	14	KS
− 3	2,841	10	70	89	7	16	KY
−61	2,984	7	58	70	9	11	LA
8	988	36	22	31	11	8	ME
− 6	3,539	26	28	57	19	16	MD
−22	3,791	1	34	36	5	9	MA
19	7,293	12	118	77	9	10	MI
− 1	3,267	6	130	89	14	11	MN
−19	1,811	15	72	90	15	12	MS
−14	3,873	18	130	88	10	15	MO
−61	733	8	71	97	18	15	MT
15	1,340	7	92	96	14	16	NE
120	835	27	45	93	20	17	NV
−34	976	39	15	90	17	12	NH
−25	5,894	24	34	35	10	15	NJ
−46	1,247	17	54	91	14	15	NM
−12	10,184	27	111	68	8	12	NY
−29	5,201	15	94	80	11	15	NC
−31	662	6	86	99	15	13	ND
37	8,820	13	113	73	7	10	OH
−53	2,581	*	111	89	13	11	OK
24	2,367	14	94	90	8	8	OR
24	7,922	14	116	76	14	10	PA
12	687	10	6	17	12	12	RI
−30	2,474	24	64	84	10	15	SC
−24	707	18	73	96	17	15	SD
−27	4,382	34	84	82	12	13	TN
−72	12,565	20	300	72	14	17	TX
−62	1,188	20	43	88	13	13	UT
16	473	36	14	93	14	11	VT
4	4,729	30	67	78	17	17	VA
27	4,075	26	82	79	11	12	WA
21	1,321	*	36	91	16	13	WV
29	4,043	37	110	66	9	7	WI
−50	491	5	41	96	20	23	WY

REVIEW PANEL

David R. Allardice
Vice President and
Assistant Director of Research
Federal Reserve Bank of Chicago

Henry E. Felder
Consultant
Washington, D.C.

William H. Frey
Faculty Associate
Population Studies Center
University of Michigan

James W. Hughes
Professor of Urban Planning
Department of Urban Planning and Policy Development
Rutgers University

Marshall Kaplan
Dean
Graduate School of Public Affairs
University of Colorado

Alan E. Pisarski
Consultant
Washington, D.C.

Phillip A. Salopek
Chief
Journey-to-Work and Migration Statistics Branch
U.S. Bureau of the Census

Ann B. Schnare
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ICF, Inc.

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Urban Mass Transportation Administration
U.S. Department of Transportation

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America in the 21st Century

ENVIRONMENTAL CONCERNS

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Report prepared by Richard Magder, Research Specialist, Population Reference Bureau with Thomas W. Merrick, President, PRB. Production manager, Tracey Smith, with assistance from Martha Herr. Graphics by Jane Andrle. Manuscript edited by Susan Kalish and Kane Scarlett. Design by Dever Designs.

The report series is under the direction of Carol J. De Vita, Senior Research Associate, and William P. O'Hare, Director of Policy Studies, Population Reference Bureau.

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America in the 21st Century:
Environmental Concerns
February, 1990
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America in the 21st Century

ENVIRONMENTAL CONCERNS

News reports of oil spills, widespread air pollution, and pesticide-laden food have galvanized public concern about environmental issues. A Gallup poll in 1988 showed that 84 percent of Americans were "very concerned" about water pollution and 73 percent held similar views about air pollution. Both figures represent significant increases from polls in the 1970s when fewer than half of those interviewed expressed such concern.

Environmental worries are not limited to the United States. Headline disasters at Chernobyl in the Soviet Union and Bhopal, India, as well as the on-going burning of tropical rain forests, reveal the worldwide dimensions of environmental problems. In Western Europe, the Green Party has translated environmental concerns into political power.

The search for solutions to a host of complex environmental problems promises to be one of the top items on the political agenda of the 1990s. The choices made will have profound effects on what life will be like in the 21st century. The issues reach beyond preservation of forests, wildlife, and recreational areas to the air we breathe, the water we drink, the safety of our homes, and the land on which our food is grown. The health and well-being of people the world over hang in the balance.

Demographic forces are a fundamental, but sometimes misunderstood, factor in shaping environmental issues. Gaining a better understanding of the scope and depth of demographic changes, their interrelationships, and the effects they have on social and economic institutions will help us deal more effectively with these forces now and in the future.

This report is part of a series of publications on "America in the 21st Century" prepared by the Population Reference Bureau under a grant from the Ford Foundation. The series highlights the importance of demographic change in shaping our local communities and world environment as we enter the 21st century. Other reports include:

- A Demographic Overview
- Human Resource Development
- Social and Economic Support Systems
- Infrastructure Needs
- Governance and Politics
- A Global Perspective

Together, these reports are designed to inform the reader about the interaction between demographic trends and public policy and to challenge our thinking about the kind of world we are likely to face as we enter the 21st century.

THE POPULATION/ ENVIRONMENT CONNECTION

Environmental issues are rarely simple. Degradation often occurs gradually, and scientists do not always agree on the pace and severity of specific problems. Solutions to environmental problems may require painful trade-offs. Policies to reduce acid rain, for example, might reduce the amount of high-sulfur coal mined in Appalachia, thereby eliminating jobs in an already impoverished region. Likewise, efforts to preserve ecologically diverse, old-growth forests in the Pacific Northwest and protect endangered wildlife, such as the spotted owl, could adversely affect employment in that region where the timber industry is an important part of the economy.

Environmental trade-offs are sometimes posed in terms of nature *versus* people. But this view fails

Environmental policies need to balance resource use with resource protection.

to recognize the interdependence that exists among human numbers, human needs, and the natural resource base on which human existence depends. Use of our natural resources is critical to the functioning of society, but at the same time human survival also depends on the conservation and preservation of the ecological system.

This report focuses on the "people" dimension of five pressing environmental issues: air pollution; the quality and availability of water; solid waste management; the disposal of hazardous wastes; and the threat of global warming, also known as the *greenhouse effect*. Each of these issues involves a complex interplay of science and technology, political and economic decisions, and a variety of human behavioral patterns. Demographic trends often affect where and when environmental problems occur, the severity of their impact on health and jobs, and other aspects of our social and economic well-being. Policy makers must be

cognizant of demographic forces in their search for solutions to environmental problems. Four demographic factors are particularly linked to environmental concerns:

- **Population Size and Growth.** The number of people in a community can have a direct bearing on environmental quality. In general, as more people inhabit a given tract of land, environmental stress usually increases: more cars create more air pollution, more consumers generate more trash, and more homeowners urbanize more land. Compared to developing countries around the world, population growth in the U.S. is relatively slow. The U.S. population is growing at a rate of less than 1 percent per year, and this trend is expected to continue well into the next century unless there is an unexpected and dramatic change in fertility or immigration rates. Yet because of the way Americans consume resources, every American has a greater impact on the world environment than do individuals in almost any other country. A newborn American child, under current consumption patterns, will have 30 times the impact on the earth's life support systems than a child born in India.

- **Population Distribution.** Where people live and their movement from place to place also have important implications for the environment. Overall, population density in the U.S. is low by world standards. However, a large share of the U.S. population is located in areas that are now under environmental stress. Southern and western states (such as California, Arizona, Texas, and Florida), which have had very rapid population growth in recent years, suffer from air pollution and water shortages. Encroaching development threatens unique natural areas such as the Grand Canyon and the Everglades. Even in the slow-growing states of the Northeast and Midwest, existing concentrations of people along with sprawling suburban growth are producing increased environmental pressures. With relatively little "open" space still available, land-use issues such as construction of highways, location of landfills, and the preservation of wetlands, have become critical problems.

- **Employment Patterns.** Policies to protect the environment will affect jobs in many sectors of the economy. Outmoded plants and factories that are major sources of air pollution or toxic materials are sometimes shut down rather than redesigned to meet more stringent

environmental standards. But some sectors of the economy are slowly adapting to environmental challenges. Pressed by clean air concerns, auto manufacturers have designed vehicles that run on alternative fuels. Farmers are becoming more aware of the need to reduce the use of chemical fertilizers and pesticides. Environmental protection efforts are creating new economic opportunities in emerging fields such as recycling, alternative energy supplies, organic agriculture, and pollution abatement and control.

Jobs in timber harvesting and other industries are likely to change as a result of environmental concerns.

Policy makers need to understand the demographics of the work force — the geographic location, age, family obligations, and other characteristics of workers — to formulate policies that minimize (or compensate for) job disruption or dislocation.

- **Health and Longevity.** One of the most difficult costs of environmental degradation to measure is its effect on people's health and lifespan. The build-up of toxic substances in our systems and the exposure to radiation may literally erode away life. Polluted air, contaminated drinking water and pesticide-laden food affect all segments of the population; however, certain groups — children, the elderly, and low-income people — are especially vulnerable to environmentally-related health problems. As our population ages and minorities (many of whom are low-income) account for a larger portion of the population, environmental health policies will become increasingly important. Projected increases in the number of elderly and the rise in health-care costs are focusing attention on the need for preventive actions. Efforts to reduce contamination of our air, water, and food could yield major health-care savings during the 21st century. Neglecting this dimension of health policy could add to the serious problems already facing our health-care system.

Demographic factors are thus an essential part of the context of environmental problems and efforts to deal with them. Demography brings the "people" dimension of these problems into focus. Individually, we all have an impact on the environment from the products we choose to the decisions we make about where to live. Collectively, our institutions and government policies play a major role in determining how we

consume resources as a society. To illustrate, we turn to several environmental issues that are likely to be high on the public policy agenda in the coming decades.

Air Pollution

The blistering summer of 1988 brought the nation its worst air pollution in a decade. More than 100 metropolitan areas failed to meet the Environmental Protection Agency (EPA) Clean Air Standards, and, on average, experienced the highest levels of ozone pollution in the decade. Even untouched rural areas were affected by smog, and pristine national parks, such as Acadia in Maine, were obscured by man-made haze.

Although major strides have been made in improving air quality since the passage of the 1970 Clean Air Act (for example, carbon monoxide in the atmosphere has been reduced by 39 percent, lead by 96 percent), air pollution remains a serious problem for much of the nation. More than 100 million Americans live in areas that at some time during the year fail to meet EPA standards for air quality. This includes almost every major metropolitan area from Seattle to Miami. Los Angeles suffers the worst air conditions with ozone alerts occurring, on average, once every three days.

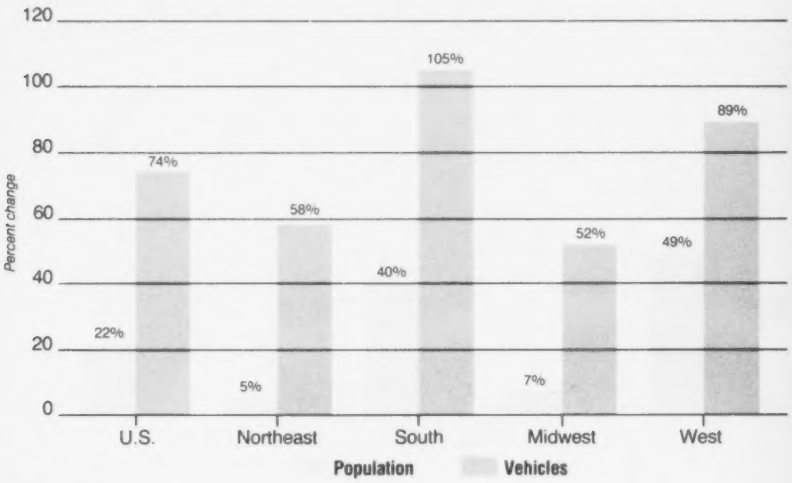
Burning fossil fuels is a major cause of air pollution. Exhaust from motor vehicles, industrial smokestacks, and power generators are among the major sources of fossil fuel pollution. Yet, attempts to limit air pollution from these sources are sometimes undermined by population numbers, lifestyle preferences, and conflicting public policies.

California, for example, has one of the toughest sets of auto exhaust regulations in the nation. Yet, 96 percent of its population lives in counties that fail EPA air quality standards. One of the reasons is that 9.8 million vehicles have been added to the state's highway system since 1970. Population growth helped to spur this increase in motor vehicles by adding 9.1 million people to the state's population. But since more cars than people have been added, it is population growth ***and*** consumption patterns that have caused the increase. A rapid rise in real income made it possible for more people to buy more cars, thereby allowing more Americans to exercise their preference for travel by personal vehicle. This offsets the gains of stricter auto emission controls.

This pattern was repeated throughout the nation. Between 1970 and 1989, the number of registered vehicles in the U.S. grew almost three and a half times faster than the population (see figure 1). The South had the most rapid increase in motor vehicles.

Air quality problems have also been exacerbated by the rapid growth of suburban and exurban areas. As housing and employment move to the outer fringes of the nation's metropolitan centers, air pollution has spread to new areas. Urban

Figure 1.
PERCENT INCREASE IN POPULATION AND VEHICLES: 1970 TO 1989



SOURCE: U.S. Department of Transportation and U.S. Bureau of the Census.

sprawl has increased the number of miles that people routinely travel to get from home to work or to go to shopping centers or recreational areas.

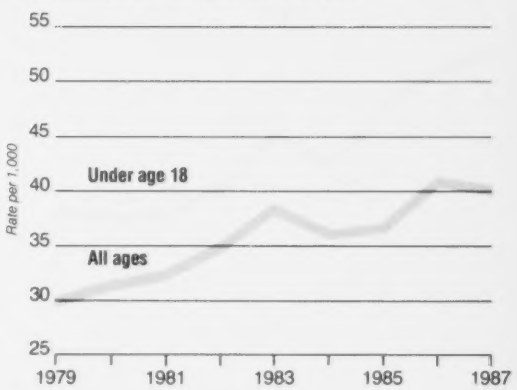
About two-thirds of all new jobs are located in suburban areas, and commuting from suburb to suburb has become far more common than commuting from suburbs to the central city. Yet mass transportation systems typically have been designed to link only the downtown areas with a handful of suburban locations. Between 1960 and 1985, the percentage of commuters using public transportation for work declined from 13 to 5 percent. Overcoming commuter gridlock will require the development of innovative transportation policies, public funding to support these options, and more effective coordination among city, suburban, county, and state jurisdictions than has been achieved in the past.

Poor air quality has also been blamed for an increasing number of health problems such as allergic and respiratory reactions, particularly among children and the elderly. The prevalence of

asthma cases, for example, has risen by roughly 30 percent since 1980 (see figure 2). Ten million Americans have asthma; 3 million of these are children under the age of 18. Statistics from the National Center for Health Statistics show that prevalence rates for asthma among children have increased 40 percent since 1980; hospitalization rates have nearly tripled since 1970; and asthma-related deaths among the elderly are also growing. Although air pollution is not the only reason for these increases, it is considered by many experts to be an important factor. At the very least, air pollution exacerbates the problems of those who suffer from asthma or other respiratory conditions. As the population ages, the impact of air pollution both in terms of human costs and health-care costs is proving significant.

Figure 2.

ASTHMA RATES IN THE U.S.: 1979 TO 1987



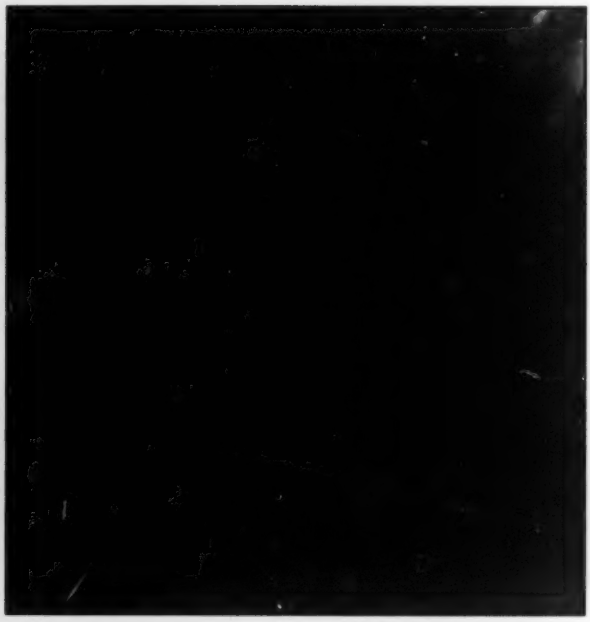
SOURCE: National Center for Health Statistics

Measures to improve air quality are likely to have a major impact on businesses and work force demographics. A transition from our reliance on fossil fuels to less polluting sources of energy, such as solar power plants or hydrogen-powered automobiles, will alter the number and types of jobs found in the energy industry in the years to come. Auto companies have already made some adjustments in response to environmental concerns, redesigning cars to make them more lightweight and aerodynamic. But even more dramatic changes may lie ahead. Proposals now before Congress call for auto manufacturers to produce one million alternatively-fueled cars by 1997. Enactment of this type of legislation could have a significant impact on jobs, not only in the auto industry itself, but also in support industries, such as gasoline stations and parts suppliers.

The Quantity and Quality of Water

Water is a vital resource for agriculture, industry, and human life itself. Although the U.S. currently has abundant water resources relative to its population, the country is facing serious problems with both the distribution and quality of its water supply. Population distribution is part of the predicament. Northern California, for example, receives three-quarters of the state's rainfall, but Southern California contains two-thirds of the state's population. People and jobs often are concentrated in areas where water supply is limited or where water quality is compromised. Some sparsely settled areas have more water than they need, while some major cities are struggling to get by.

Nowhere is this fact more dramatic than in California and the Southwest, where water supply is a major economic and political issue. The region's highly productive agro-industry would not be possible without irrigation, which accounts for about 90 percent of all water use in that region. However, the rapid growth of the Southwest's burgeoning metropolitan centers has created tension and competition for water between urban and agricultural interests. Arizona passed comprehensive groundwater legislation in 1980 to help regulate water usage and conserve water resources. Los Angeles now requires residents to install water-saving shower heads and toilets. But unless water conservation measures keep pace with the expected growth in the population, some analysts predict severe water shortages in the region during the 1990s.



The agro-industry accounts for 90 percent of water use in Southwestern states, creating conflict with expanding urban centers for limited water supplies.

Water supply problems are not limited to the far Southwest. In the Great Plains, the Ogallala aquifer, which stretches from Nebraska south to Texas, and is the main source of water for that region's agricultural production, is being depleted. Projections show that in the Texas High Plains, the declining water table will support only 55 percent of current irrigated acreage by 2000. By 2030, there may only be enough water to support 35 to 40 percent of current crop capacity. As the water table declines, the cost of extracting the groundwater is likely to soar, making it uneconomical for farmers to continue to use this water source. Although this might prevent the full depletion of the aquifer, the scarcity of water will raise the cost of agricultural production.

Eastern states also face serious water problems. The region's high population density puts added stress on maintaining the quality of the water supply. Boston Harbor, for example, receives wastewater from more than two million people every day and has been found to contain high levels of toxic contaminants. Yet despite the attention that Boston received during the 1988 presidential campaign, it is not the only urban center whose high population density and economic activities make it difficult to protect water resources.

Coastal regions face particularly difficult ecological problems. More than half of the U.S. population now lives within 50 miles of a coastline.

While U.S. settlements have always been concentrated along coastal waters, population density in these areas has increased. Since 1960, the coastal population has grown by 38 percent – an addition of 35 million people – putting considerable stress on fragile ecosystems. High population densities of some coastal communities have had a serious impact on critical coastal environments, such as the wetlands that purify and protect coastal waters and the barrier islands that are the first defense against dangerous storms.

Pollution of coastal waters also affects economic vitality. More than 40 percent of the nation's productive shellfish waters are now restricted or closed because of contamination. Policies addressing coastal zone management such as off-shore oil drilling, resort development, or wetlands protection will need to weigh the costs and benefits of development strategies against environmental protections.

Water quality suffers in many urban areas where diverse sources of pollution overload local management efforts.

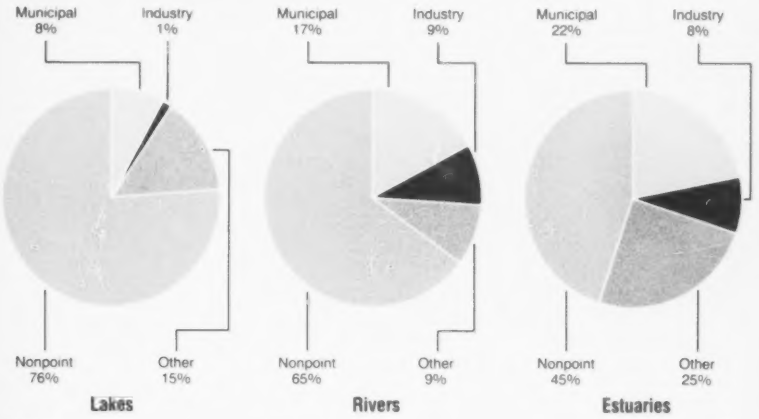
Despite concern about water quality along the coastlines, the nation's water systems, on the whole, have greatly improved since passage of the 1972 Clean Water Act. For example, the proportion of river miles assessed by states that met the Act's standards rose from 36 percent in 1972 to 74 percent in 1986. Water quality also improved on 390,000 acres of lakes between 1972 and 1982. Seventy-three percent of assessed lake acreage met the standards in 1986.

Much of this improvement can be attributed to controls over industrial and municipal wastewater discharge. Yet, the initial gains in municipal wastewater treatment that were made in the 1970s have been offset by population growth and industrial expansion. Between 1970 and 1988, the number of people served by these plants rose by 32 million. As the volume of wastewater from commercial, residential, and industrial users increased, the effectiveness of many wastewater treatment plants diminished. It will cost $68 billion to upgrade the nation's wastewater treatment plants to meet current needs, according to EPA estimates, and an additional $15.5 billion to meet future needs by the year 2008. States and localities will have to pick up much of these costs as the federal government phases out its financial support to states for wastewater treatment programs over the next five years.

Wastewater from municipal sewage plants and factories is only part of the water pollution problem, however. Nonpoint pollution — that is, pollution from agricultural runoff (such as soil erosion, pesticides, fertilizers, and animal wastes) and urban runoff (such as used motor oil poured down storm drains, leaky septic tanks, or lawn and garden fertilizers) — is a larger and more insidious problem because it is harder to detect and control. More than half of all lake and river pollution comes from nonpoint sources (see figure 3). The problem is exacerbated by suburbanization, which has spread

Figure 3.

SOURCES OF WATER POLLUTION: 1986



SOURCE: The Environmental Protection Agency.

urban populations over larger tracts of land and made control strategies more complex and difficult to implement.

Solid Waste

The saga of the barge that wandered from port to port unable to dump its load of trash dramatically illustrated the nation's garbage crisis. So did the pictures of medical wastes that washed up on East Coast beaches in the summer of 1987. America's solid waste problems are a symptom of its consumerism. Every year Americans throw away 1.6 billion pens, 2 billion razor blades, and 220 million used tires. The amount of garbage generated has increased each year since 1960. Plastic trash alone grew from a marginal 400,000 tons in 1960 to 10 million tons in 1986. Today's average worker produces 50 percent more paper trash than in the 1970s, despite the increased usage of computers for information storage.

The U.S. currently produces more than 11 billion tons of solid waste annually. Industrial wastes account for the largest share (nearly 70 percent), followed by oil and gas waste and mining waste. Municipal solid waste (that is, household and commercial trash) is the fourth largest contributor

to the solid waste problem. It amounted to 160 million tons in 1986 and is expected to increase 20 percent by the year 2000. Eighty percent of municipal wastes are deposited in landfills with the rest either incinerated (10 percent) or recycled (10 percent).

The increase in municipal solid waste is attributable to the interaction of population growth and consumer lifestyles. Between 1960 and 1986, the U.S. population grew by 34 percent; municipal solid waste, on the other hand, increased by 80 percent. Consumer preference for throw-away products, as well as wasteful packaging practices, are important factors in the increasing amount of municipal solid wastes. On a per capita basis, we now produce almost a pound more of garbage per day than in 1960. Although the amount of municipal waste produced per person is expected to rise only slightly from current levels, population growth during the 1990s is projected to generate an additional 35 million tons of garbage per year.

As the volume of municipal solid waste grows, places to put it are becoming increasingly scarce. Landfill capacity is declining by roughly 56 million tons per year and only 20 million tons of new capacity are being created annually to replace it. Seventy percent of the nation's landfills have closed since 1978, either because they reached capacity or because they could not meet environmental standards. Of the 6,000 landfills currently in operation, about half are expected to close by 1995.

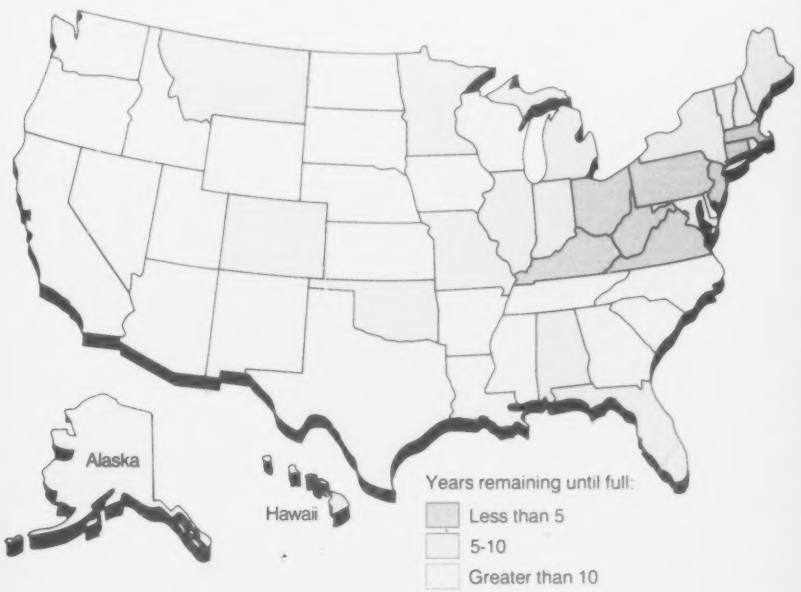
Where population density is high and landfill space is scarce, as in the Northeast, disposal problems are acute. By 1995, eight states (Massachusetts, Connecticut, New Jersey, Pennsylvania, Ohio, Virginia, West Virginia, and

Disposable packaging and increased consumption have caused our solid waste to grow twice as fast as our population since 1960.

Kentucky) are expected to exhaust their landfill space (see figure 4). Another seventeen states, including the remainder of the Northeast, are projected to run out of landfill space before the turn of the century.

Suburbanization has contributed to the landfill shortage. In the past, dumps were typically located at the edge of town. As development pushes farther

Figure 4.
DECLINING STATE LANDFILL CAPACITY: 1988



SOURCE: National Solid Waste Management Association

out, finding locations for sites has become more difficult. In many fast-growing areas, it is even difficult to locate sites beyond the current municipal fringe because speculators have bought land in anticipation of future population growth.

Because of the shortage of landfill space, solid waste disposal costs have skyrocketed. Regional population density is a contributing factor. In crowded Connecticut, for example, it can cost up to $100 a ton to haul away trash. In Las Vegas, the cost is only $6 a ton. High disposal costs in crowded areas induce some people to dump their trash illegally.

Some cities are experimenting with ways to reduce the amount of waste produced. Seattle, for example, currently sets its trash collection fees on a per trash can basis. It also is developing an innovative pilot program that calls for installing scales and computerized scanning devices on garbage trucks. Household garbage cans would have computerized "bar codes." The trucks would

be equipped to read the bar code and enter the weight of the disposed materials into a computerized billing system. Residents would then be charged on a per pound basis for their trash.

Incinerating garbage is one alternative to landfills, but this can pose a number of environmental risks, particularly the emission of toxic pollutants into the atmosphere. Antipollution devices can be installed in incinerator plants, but this can significantly increase the costs of construction and plant operation. Even after such precautions are taken, however, the remaining ash often contains toxic elements that require disposal in carefully prepared landfill sites.

Recycling is an increasingly popular strategy used by municipalities to address growing garbage disposal problems.

Recycling is another alternative that is gaining popularity. In 1989, 125 recycling laws were enacted across the country. Twenty-six states and the District of Columbia had adopted some type of recycling program, and more than 1,000 communities offered curbside recycling. Businesses also are getting involved in recycling efforts. AT&T estimated that it saved $1 million in 1988 in disposal costs and turned a $365,000 profit by recycling office paper. But recycling systems are still in their infancy and sometimes have been inundated by the volume of waste materials received. A nationwide glut of newsprint emerged in the summer of 1989, for example, in part because of the low demand for recycled paper. Efforts to encourage the use of products made from recycled materials would help make recycling programs a more competitive alternative to other forms of waste disposal.

Managing America's solid waste problems will be a major challenge for the 1990s. The EPA has set a goal of achieving a 25 percent reduction in the nation's municipal solid waste by 1992. In working toward this end, policy makers need to be aware of the underlying demographic trends that can affect both the volume of waste to be managed and the decisions of where and how to dispose of it.

Hazardous Waste

In addition to the billions of tons of solid waste produced every year, the U.S. also generates some 700,000 tons of hazardous waste every day. These materials include carcinogenic industrial chemicals, radioactive nuclear wastes, and many common household items such as paints, cleaning chemicals, and home and garden insecticides. When improperly disposed, they pose serious environmental threats and can be a danger to the nation's public health.

Current problems are many and serious:

- Of the 4,800 sites currently licensed to handle hazardous substances, 50 percent are believed to be leaking.
- Twelve of 14 U.S. Department of Defense sites investigated by the U.S. General Accounting Office (GAO) in 1986 were violating environmental standards.
- More than 1,200 of the 30,000 abandoned hazardous waste sites under the Superfund program currently warrant priority attention according to the EPA (see figure 5).

Careful handling of hazardous waste is necessary to safeguard the environment.

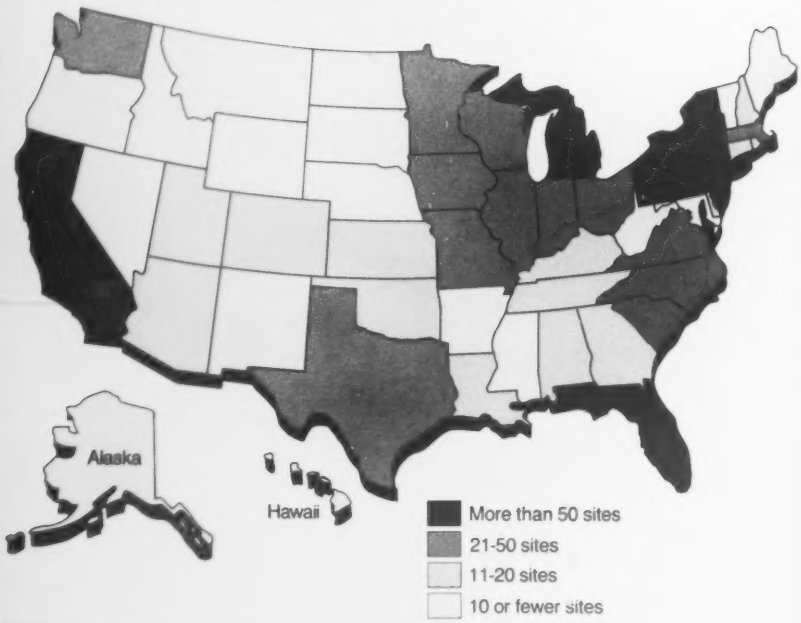
Determining how to dispose of hazardous wastes in a safe and efficient manner has become a highly controversial and politically charged issue. Community opposition to proposed site locations generally runs high. Among the concerns are potential air and water contamination, accidents during transport, and a decline in property values near the sites. Low-income and minority people, who generally have less political clout and fewer resources with which to resist proposed sitings, often lose out in siting conflicts. In reviewing four sites in eight southeastern states, the GAO found that three were located in black communities and all had poverty rates that were nearly twice the national average. Other local area studies have also reported a disproportionate share of hazardous waste sites in low-income, minority communities.

The issue is challenging because without sufficient disposal sites, some industries claim that they would have to cut back on production, thus jeopardizing jobs and the supply of certain commodities. Environmentalists counter that the need for additional disposal sites would be lessened if we develop new processing techniques to reduce the amount of hazardous waste generated or develop recycling strategies for hazardous wastes.

As the shortage of available disposal sites worsens, a greater volume of hazardous wastes is being transported across state lines. States that currently have the capacity to handle additional hazardous wastes, however, are becoming increasingly resistant to other states shipping hazardous wastes to them. South Carolina, for example, recently banned shipments of hazardous

wastes from 32 states because it believed that these states were not aggressively addressing the problem of disposal within their own boundaries. Other states with waste sites are considering similar action. While everyone recognizes the need for safe disposal of hazardous wastes, the not-in-my-backyard syndrome dominates the problem.

Figure 5.
SUPERFUND HAZARDOUS WASTE SITES REQUIRING PRIORITY CLEAN-UP: 1989



SOURCE: Environmental Protection Agency

The costs of hazardous waste management are high:

- It will take an estimated $13 billion and 13 years to begin clean up efforts at the 1,200 sites on the current EPA Superfund priority list.
- It will take nearly $23 billion and 35 years to correct problems at the nation's licensed disposal sites, according to the GAO.
- It will cost more than $100 billion to clean up environmental problems at military disposal sites in 12 states, according to estimates by the U.S. Department of Energy.

Addressing hazardous waste disposal issues will require a substantial economic investment, and securing the needed funds may be difficult in the face of competing national objectives.

But the estimated clean up costs for hazardous waste disposal are only part of the equation. The long-term health consequences to the population are more difficult to assess. Numerous health problems, such as birth defects, gastric disorders, cancer, and eye and liver diseases, have been linked through laboratory experiments to prolonged exposure to the types of toxic chemicals often found in hazardous waste sites. The long-term health effects of exposure to toxic substances are largely unknown, but often appear as degenerative diseases at older ages. Since the baby boom generation has been exposed to more toxic materials for a longer period of time than any previous generation, the effects of toxic build-up could emerge as an important public health problem in the years ahead and add to the nation's health-care bill in the 21st century.

Global Warming

Environmental problems do not stop at state or national borders as the effects of acid rain and the spread of radiation into Western Europe after the Chernobyl nuclear accident demonstrated. But the most serious worldwide environmental threat may be global warming, the so-called greenhouse effect. This phenomenon results from the build-up of certain gases (such as carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons) in the earth's atmosphere. Energy from the sun passes freely through the atmosphere to warm the earth's surface. But the heat that is radiated from the earth toward space is partially blocked by the greenhouse gases; some of this heat is reflected back toward the earth's surface. The greenhouse gases act like a blanket trapping heat within the earth's atmosphere and gradually warming the planet.

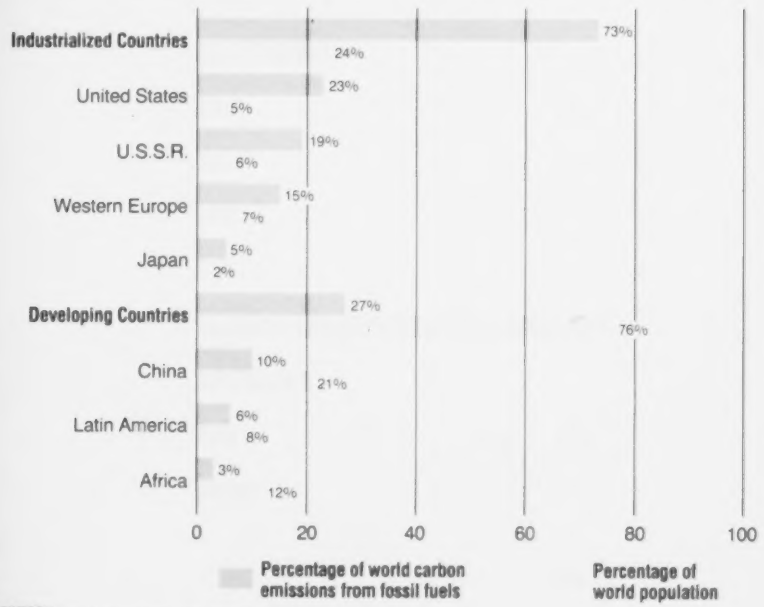
There is growing scientific evidence that the atmospheric concentration of these greenhouse gases is increasing. However, there is much uncertainty as to the rate and magnitude of potential temperature changes. Prestigious scientific organizations, such as the National Academy of Sciences, the World Meteorological Association, and the Goddard Institute for Space Studies estimate that the earth's temperature could rise by two to five degrees Celsius (four to nine degrees Fahrenheit) by the middle of the next century. The possibility of change that great and that fast has sparked considerable debate about possible consequences and responses.

The build-up of greenhouse gases is associated in large part with human activities. Automobile emissions, power plant generators, air conditioning systems, deforestation, and intensive agricultural production are the primary causes of the greenhouse gases. Although many man-made gases contribute to the greenhouse effect, carbon

dioxide accounts for about half of the build-up. Almost three-quarters of carbon emissions comes from the burning of fossil fuels. Industrialized nations use vast quantities of fossil fuels to maintain their high standards of living. Nearly 75 percent of all carbon emissions from fossil fuel use comes from industrialized countries, even though these countries represent less than 25 percent of the world's population. The U.S., with 5 percent of world population, is the leading contributor (see figure 6).

Figure 6.

CARBON EMISSIONS FROM FOSSIL FUELS AND POPULATION: 1985



SOURCE: World Resources Institute and Population Reference Bureau.

Because per capita carbon emissions are so heavily skewed toward high-income countries, consumption patterns are a chief cause of global warming. But population contributes to the seriousness of the problem and plays an important role in efforts to combat it. Low-income, developing countries currently account for less than half of the carbon build-up in the earth's atmosphere. But that could change in the next century as people in developing countries try to raise their living standards and thereby consume more energy. If the energy source is fossil fuel, a worldwide per capita increase in carbon emission would occur. Furthermore, the population of developing countries is growing more rapidly than the

population of industrialized countries. Developing nations are projected to add 3 billion people to their ranks between now and 2025. More people striving for a higher living standard will hasten the build-up of atmospheric pollutants.

Population pressures have also been linked to deforestation, particularly the decline of tropical rain forests that absorb significant amounts of carbon and limit atmospheric build-ups. Some developing countries are burning and cutting down rain forests to make room for agriculture and new settlements. As these trees are burned or decay, carbon dioxide and methane are released into the atmosphere, further exacerbating the problem.

Computer models indicate that global warming could have widespread consequences. The ability of developing countries to feed their growing populations and sustain rising living standards could be undermined. Weather patterns could change all over the world. Much of the U.S. could experience higher average temperatures. Boston would feel more like Washington, D.C., and Miami more like Panama City, Panama. More than half of the U.S. lives within 50 miles of coastal waters, and the safety of many communities, barrier islands, and resort facilities could be jeopardized. A one meter rise in sea level is likely to produce flooding of 7,000 to 8,000 square miles of lowlands in Louisiana, Florida, and other southeastern states.

Major adjustments would be required in the U.S. economy, particularly in the agricultural and energy industries. Growing seasons and rainfall patterns would change, permitting the relocation of some types of cultivation, but risking the loss of crops and forests in other areas. The energy industry would experience enormous pressures not only to meet increased demand for air conditioning but also to produce energy without contributing further to carbon emissions. Developing prudent and foresighted responses to such scenarios, given the scientific uncertainty and political controversy that surrounds such projections, will be a critical policy challenge for the coming decades.

Because of its worldwide impact, the response to global warming requires global cooperation. Although the problem has attracted the attention of world leaders, the politics of global warming are complex. Poor countries are reluctant to hold down their use of fossil fuels when they see rich countries consuming those fuels at much higher rates. Producers of energy-efficient technologies may be more interested in getting a return on their investment than in sharing those technologies with poor countries that, because of mounting debt burdens, may be unable to purchase them. In any case, every American has a role to play in addressing global warming by changing consumption habits, planting a tree, or supporting policies to make us a more energy-efficient society.

ENVIRONMENTAL DECISIONS FOR THE 1990s

How the nation responds to environmental threats will significantly affect life in the 21st century. Ignoring or neglecting these issues will eventually produce adverse affects on the nation's health and economic well-being. Yet, active responses require adjustments in how we produce and consume goods and services, the nature of jobs, where we work and live, and what kinds of personal lifestyles we lead. For example:

- **Transportation Policies.** The American penchant for the private automobile has increased the number of motor vehicles on the road and contributed greatly to air pollution and global warming problems. The number of cars, who drives them, where they are located, and their rate of use are closely linked to demographic patterns. Transportation policies designed in the past for densely populated urban centers may be inappropriate for sprawling suburbs and exurban areas that seem to be shaping our future. Demographic analysis can help to assess environmental impacts in different settings.

- **Energy Policies.** Concern about the depletion of the earth's natural resources and increased atmospheric pollution are changing how we produce and use energy. Investments in more efficient technologies and in alternative energy sources will alter the nature of jobs and labor markets in the 21st century. Decreased reliance on fossil fuels could eliminate jobs in coal mines or on off-shore oil rigs. But even though new employment opportunities might emerge in solar energy or nuclear power plants, for example, these jobs may occur hundreds of miles away and call for a different set of skills. Demographic analysis is needed to trace the dislocation of workers and the number (and types) of people in need of job retraining.

- **Land-Use Policies.** Environmental stress is closely tied to land-use patterns. Expanding populations, urban sprawl, and the location of commercial, residential, and industrial activities, all contribute to environmental tensions. How we use our water resources, dispose of our wastes, develop our transportation policies, and site employment and residential areas will affect housing markets, commuting patterns, and economic development. Policy makers will be asked to chose among competing land-use policies. Understanding the linkages between demographic factors, resource consumption, and

ecological systems will be vital for maintaining environmental integrity and a high quality of life not only for ourselves but for future generations.

Population. Environmental issues must be seen as human issues. Individually and collectively, human activity affects the outcome of environmental problems. For this reason, a demographic perspective is needed in formulating environmental programs and policies. While human behavior generally determines the *nature* of environmental problems, the number and distribution of people have important effects on the location, timing, and magnitude of the problems. Increasing population, particularly in environmentally sensitive areas, will only aggravate environmental problems and dilute efforts to deal with them. Some environmentalists feel that halting population growth in the U.S. is essential to preserving environmental quality. Others emphasize the need for better policies to reduce consumption and use our resources more efficiently. Policy makers will need to understand the interaction between population dynamics and environmental change in assessing such diverse policies as immigration reform, land-use planning, or research on energy technologies.

The environmental decisions we make today will help shape our world for future generations.

Effective action will require a firm understanding of demographic trends because environmental policies directly impact people's lives. Some population groups are affected more than others, and different groups are affected in different ways. Anyone who lives or works in an unsafe environment is at greater risk of health impairments and economic hardship than the public at large. But minority groups and low-income people are much more likely to be at risk because they generally have fewer options in finding housing or jobs that are free of environmental hazards. Children and older people also are more vulnerable to the adverse health effects of environmental problems.

As the U.S. population ages and minorities account for a greater share of the population, the social and economic costs of neglecting environmental concerns are likely to mount. National leadership, as well as state and regional cooperation, will be needed to formulate effective responses to environmental problems both domestically and internationally. A large part of the costs are likely to fall on state and local governments, as the federal government continues to struggle with federal deficits and cost containment strategies. Balancing the costs and benefits of environmental policies, however, will be essential. Failure to do so may defeat measures that are in everyone's interest.

BACKGROUND READINGS

Baldassare, Mark, *Trouble in Paradise: The Suburban Transformation In America* (New York: Columbia University Press, 1986).

Brown, Lester, et al., *State of the World: 1989* (Washington, DC: Worldwatch Institute, 1989).

Chandler, William U., Howard S. Geller and Marc Ledbetter, *Energy Efficiency: A New Agenda* (Washington, DC: American Council for An Energy-Efficient Economy, 1988).

DeGrove, John M., *Land, Growth and Politics* (Chicago: American Planning Association, 1984).

El-Ashray, Mohamed T. and Diana C. Gibbons, eds., *Water and Arid Lands of the Western United States* (Washington, DC: World Resources Institute, 1988).

Ehrlich, Paul R. and Anne H. Ehrlich, *The Population Explosion* (New York: Simon and Schuster, 1990).

Millemann, Beth, *And Two If By Sea: Fighting the Attack on America's Coasts* (Washington, DC: The Coast Alliance, Inc., 1986).

Renew America, *The 1989 State of the States Report* (Washington, DC: Renew America, 1989).

U.S. Environmental Protection Agency, "The Greenhouse Effect: How It Can Change Our Lives," *EPA Journal* (January/February 1989).

U.S. Office of Technology Assessment, *Facing America's Trash: What Next for Municipal Solid Waste?* (Washington, DC: U.S. Government Printing Office, 1989).

Walters, Jonathan, "Recycling Pays, But Not in Cash," *Governing*, Vol. 2, No. 6 (March 1989).

Witt, Elder, "When Uncle Sam Makes a Mess, Who Is in Charge of Cleaning It Up?" *Governing*, Vol. 2, No. 6 (March 1989).

STATE DATA TABLE

	POPULATION			AIR		
	1989 (in 1000s)	% POPULATION CHANGE 1989-2010	% IN METRO AREAS 1988	MOTOR VEHICLES 1989 (in 1000s)	% CHANGE MOTOR VEHICLES 1980-1989	% POPULATION IN COUNTIES FAILING EPA AIR STANDARDS 1988
United States	248,239	14	77	188,669	21	64
Alabama	4,118	12	68	4,075	39	24
Alaska	527	45	42	367	40	58
Arizona	3,556	50	76	2,785	45	86
Arkansas	2,406	9	40	1,436	-9	0
California	29,063	29	96	21,657	28	96
Colorado	3,317	24	82	2,932	25	84
Connecticut	3,239	9	93	2,695	26	100
Delaware	673	17	66	529	33	66
District of Columbia	604	11	100	268	*	NA
Florida	12,671	38	91	11,378	49	51
Georgia	6,436	41	65	5,385	41	37
Hawaii	1,112	40	76	719	26	0
Idaho	1,014	6	20	953	14	31
Illinois	11,658	– 1	83	8,091	8	78
Indiana	5,593	– 3	68	4,265	11	45
Iowa	2,840	–16	43	2,613	12	41
Kansas	2,513	2	53	2,237	11	35
Kentucky	3,727	*	46	2,841	10	41
Louisiana	4,382	4	69	2,984	7	59
Maine	1,222	7	36	988	36	87
Maryland	4,694	21	93	3,539	26	81
Massachusetts	5,913	6	91	3,791	1	100
Michigan	9,273	– 2	80	7,293	12	90
Minnesota	4,353	5	67	3,267	6	63
Mississippi	2,621	16	31	1,811	15	0
Missouri	5,159	7	66	3,873	18	46
Montana	806	– 1	24	733	8	52
Nebraska	1,611	– 5	48	1,340	7	46
Nevada	1,111	34	83	835	27	98
New Hampshire	1,107	31	56	976	39	90
New Jersey	7,736	16	100	5,894	24	100
New Mexico	1,528	47	49	1,247	17	34
New York	17,950	1	91	10,184	27	73
North Carolina	6,571	24	55	5,201	15	7
North Dakota	660	– 7	38	662	6	0
Ohio	10,907	– 5	79	8,820	13	80
Oklahoma	3,224	9	59	2,581	*	17
Oregon	2,820	6	68	2,367	14	68
Pennsylvania	12,040	– 8	85	7,922	14	89
Rhode Island	998	9	93	687	10	100
South Carolina	3,512	20	61	2,474	24	17
South Dakota	715	1	29	707	18	11
Tennessee	4,940	11	67	4,382	34	43
Texas	16,991	31	81	12,565	20	47
Utah	1,707	27	77	1,188	20	78
Vermont	567	7	23	473	36	33
Virginia	6,098	22	72	4,729	30	25
Washington	4,761	11	82	4,075	26	62
West Virginia	1,857	–13	37	1,321	*	26
Wisconsin	4,867	– 3	67	4,043	37	60
Wyoming	475	3	29	491	5	9

[a] In millions of gallons per day; measure of consumptive use, not water withdrawals.
[b] Total includes U.S. territories and Puerto Rico.
[c] Includes current and proposed sites.
[d] EPA best national estimate.

* Change is negligible.
NA – Data are not available.

SOURCES:

U.S. Population – U.S. Bureau of the Census, news release CB89-204, Series P-25, No. 1017, and P-26, 88-B.
Motor Vehicles – U.S. Department of Transportation, *Highway Statistics 1980* and unpublished data, 1989.
Air Polluted Counties – U.S. Environmental Protection Agency, Air Quality Management Division, unpublished data, June 1988.
Water Consumption – U.S. Geological Survey, *Estimated Use of Water in the United States, 1985*, 1988.
Wastewater – U.S. Environmental Protection Agency, *1988 Needs Survey Report to Congress*, 1989.
Superfund – U.S. Environmental Protection Agency, Superfund National Priorities List, July 1989.
Solid Waste – Renew America, *State of the States Report*, 1989.
Energy Use – U.S. Department of Energy, *State Energy Data Report, 1960-1987*, 1988.
Carbon Emissions – Renew America, *Reducing the Rate of Global Warming*, 1988.

WATER		WASTE		ENERGY			
WATER CONSUMPTION[a] 1985 (in Mgal/d)	COST TO UPGRADE WASTEWATER TREATMENT PLANTS BY 2008 (in millions)	SITES ON SUPERFUND PRIORITY LIST[c] 1989	% SOLID WASTE DISPOSED IN LANDFILLS 1988	ENERGY USE 1987 (trillion Btu)	% CHANGE IN ENERGY USE 1980-1987	CARBON EMISSIONS FROM FOSSIL FUELS 1986 (million tons)	
92,136	$83,512[b]	1,214	80[d]	76,777	1	1,275	U.S.
541	781	12	96	1,557	3	29	AL
27	221	5	90	472	61	8	AK
3,700	979	11	99	851	15	15	AZ
3,210	370	10	94	710	−14	15	AR
21,100	6,539	98	88	6,807	5	85	CA
4,850	196	17	NA	883	5	17	CO
106	1,392	14	95	729	4	10	CT
39	127	20	50	222	−10	5	DE
24	278	0	NA	172	14	NA	DC
2,730	6,186	51	65	2,760	13	44	FL
838	1,007	14	94	1,923	17	36	GA
132	413	7	84	235	− 7	4	HI
5,290	124	9	96	338	1	3	ID
686	2,958	39	95	3,359	−10	55	IL
454	1,721	37	94	2,373	*	49	IN
473	646	25	95	877	− 9	16	IA
4,710	720	12	99	1,010	− 1	18	KS
260	1,457	17	NA	1,330	− 4	30	KY
2,090	1,189	11	90	3,410	− 5	52	LA
203	341	9	85	329	15	4	ME
423	919	10	88	1,206	7	18	MD
316	5,836	25	78	1,320	10	22	MA
611	3,321	81	85	2,583	− 8	47	MI
768	1,106	41	92	1,206	2	18	MN
661	548	3	NA	869	9	14	MS
504	1,222	23	NA	1,445	*	27	MO
300	69	10	99	321	− 8	6	MT
4,910	114	5	97	496	− 1	8	NE
1,890	165	0	100	337	16	7	NV
76	854	16	74	243	29	4	NH
279	3,754	109	89	2,252	8	31	NJ
1,530	130	10	97	501	5	12	NM
1,400	12,721	80	83	3,476	− 8	50	NY
439	1,799	22	98	1,836	14	30	NC
201	34	2	NA	308	39	10	ND
396	3,579	34	85	3,646	− 8	67	OH
576	476	11	NA	1,254	4	21	OK
2,600	1,273	7	75	854	− 1	7	OR
589	1,644	96	95	3,431	−12	66	PA
23	408	11	98	208	15	2	RI
340	684	22	99	1,122	15	15	SC
361	87	1	100	198	5	3	SD
275	1,467	14	NA	1,693	*	29	TN
8,650	4,975	29	90	9,151	2	155	TX
2,130	583	12	NA	477	− 5	10	UT
26	209	8	82	125	12	1	VT
269	957	21	95	1,755	17	23	VA
4,700	2,685	45	90	1,709	10	16	WA
877	976	6	99	734	−16	28	WV
321	1,399	39	NA	1,296	− 1	22	WI
2,670	18	3	97	374	3	12	WY

REVIEW PANEL

Patricia Baldi
Director of Population Programs
National Audubon Society

Thomas W. Curtis
Director
Natural Resources Group
National Governors' Association

John M. DeGrove
Director
Joint Center for Environmental and Urban Problems
Florida Atlantic University
Florida International University

Paul R. Ehrlich
Bing Professor of Population Studies
Department of Biological Sciences
Stanford University

Daniel P. Garcia
Partner
Munger, Tolles, and Olson

Rick Piltz
Deputy Executive Director
Renew America

Bud Ward
Executive Director
Environmental Health Center
National Safety Council

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America in the 21st Century

GOVERNANCE AND POLITICS

A publication of the Population Reference Bureau, Inc.

PRB

America in the 21st Century

GOVERNANCE AND POLITICS

A new political landscape is unfolding. Demographic change will alter the size and composition of the voting electorate, influence who seeks and is elected to public office, and help shape the public sector work force. The political realignments of the next century may already be taking shape in states like Texas and California that have expanding populations in which minorities account for a growing share of the electorate.

In many ways, we see that the 21st century has already arrived – at least in demographic terms. The U.S. labor force of the next century is already born (although not all in the United States); next century's first high-school graduating class (as well as its dropouts) are already in grade school; and the elderly of the 21st century (the baby boom generation) are already well down paths that will determine their financial and health-care needs in their older years. Changing social and demographic factors have exerted a profound impact on our individual lives and on society as a whole. These forces will continue to play a major role in shaping both public- and private-sector policies and programs in the years ahead. Gaining a better understanding of demographic changes, their interrelationships, and the effects that they have on social, economic, and political institutions will help us deal more effectively with these forces now and in the future.

This report is part of a series of publications on "America in the 21st Century" prepared by the Population Reference Bureau under a grant from the Ford Foundation. The series highlights the importance of demographic change in shaping our local communities and world environment as we enter the 21st century. Other reports in the series include:

- A Demographic Overview
- Human Resource Development
- Social and Economic Support Systems
- Infrastructure Needs
- Environmental Concerns
- A Global Perspective

Together, these reports cover a broad range of issues and important public policy topics. They are designed to inform the reader about the interaction between demographic trends and public policy considerations and to challenge our thinking about the kind of world we are likely to face as we enter the 21st century.

DEMOCRACY'S DEMOGRAPHIC FOUNDATION

In 1787, the framers of the Constitution mandated that the country's population be counted every ten years as a mechanism for apportioning seats in the U.S. House of Representatives. Since that time, population trends have been closely monitored by every public official, aspiring politician, and (more currently) political pollster in the country. Demographic trends do not predetermine political outcomes, but they are a vital force in shaping the political process, determining the issues that will be debated, and carrying out governmental functions.

▲ **Changing demographic trends will help determine who votes and who is elected to public office.**

Americans use population statistics in at least three ways: first, as a basis for allocating representation in legislative bodies, thereby shifting the distribution of political power among geographic areas and voter groups; second, as a tool for observing, monitoring, and analyzing the social and economic conditions of the country; and third, as the basis for allocating public funds. Billions of dollars are distributed each year on the basis of population counts.

Because the purpose of democratic government is to represent the collective will of the people, the linkages between demographic change and our political and governmental systems are vitally important. Several demographic trends help shape America's future:

- **The aging of the population** will increase the number of voters in the middle- and older-age groups;
- **The changing racial and ethnic composition** of the population will result in more minority voters;
- **The changing composition of households and families** will place new demands on government services and alter the property tax base of many localities;
- **Migration to the sunbelt and the outer suburbs** will affect political boundaries and political alignments; and
- **The tightening of labor markets** will affect the ability of governments to attract and retain workers at a cost they can afford to pay.

This report examines three important issues related to questions of governance and politics from a demographic perspective – the changing size and composition of the voting electorate; the effects of demographic change on the electoral process and on electoral outcomes; and the ability of government to attract and retain talented and committed individuals to public service. Knowledge of the demographic dimension of these issues will help policy makers grapple with emerging problems and take advantage of opportunities that develop as we move toward the 21st century.

THE CHANGING ELECTORATE

The social and political history of the U.S. has largely been based on population growth and demographic change. The abolition of slavery, the settlement of the frontier, the successive waves of immigrant groups, and the extension of voting rights to women and citizens who are 18 years of age or older have meant political gains and losses for various groups within the population. Today, two demographic trends – the aging of the population and the changing racial/ethnic composition of the U.S. – are creating new political tensions as they reshape the voting electorate and the nation.

Aging of the Population

Over the past 40 years, the number of older people in the population has grown steadily. In 1950, only 12 million Americans were age 65 or older; today, the number is close to 30 million – roughly 12 percent of the population. Demographic projections show that the size of the older population will increase slowly for the next 20 years, only to rise dramatically after 2010 as the large baby boom generation (born between 1946 and 1964) begins to reach age 65. About 65 million people (or 20 percent of the population) are expected to be age 65 or older by 2030.

The fastest-growing segment of this population group is among the old-old, those age 85 and older. Their numbers are expected to triple by 2030, accounting for more than 8.6 million people. Because the need for supportive services increases dramatically with age, the growing number of elderly who are over the age of 85 is likely to place a significant claim on public sector resources. California, Florida, New York, Texas, and Pennsylvania are expected to have the largest number of people age 85 and older by the year 2010.

From a political perspective, some analysts believe that as the large baby boom generation enters into middle age and its older years, it will create a formidable interest group that will shift a larger share of services and resources toward its own perceived needs. This possibility has given rise to fears of intergenerational competition and conflict. At very least, these analysts argue, the shifting demographic numbers will create a heavy burden of support for future taxpayers and the working-age population (ages 18 to 64). Currently, there is one older person for every five people of working age; by 2030, this ratio is projected to be one in three.

▲ Voter turnout rates for people age 65 and older have increased in recent years, making the elderly an important political force.

Other analysts counter that there is no conclusive evidence that the elderly will vote as a bloc and point to intergenerational family ties that would mitigate potential conflict. They also point out that demographic projections of the next 50 years show that the *total* dependency burden (that is, both children *and* elderly in the population) will not exceed the level it attained in 1964 at the height of the baby boom. At issue is the relative costs of supporting younger and older segments of the population and the sources of that support — whether privately-derived or publicly-funded. In any case, the political battles over issues such as health-care costs, retirement income programs, and tax reforms are likely to be cast, at least in part, in demographic terms.

Changing Racial and Ethnic Composition

A new racial and ethnic mosaic is emerging within the U.S. population. By 2000, nearly one-third of all school-age children will be from minority populations. Changing immigration patterns, combined with slightly higher birth rates among some minority groups, account for this change.

The U.S. has long regarded itself as a "nation of immigrants," but in recent years both the number of new immigrants and the racial, ethnic, and national backgrounds of new immigrants has changed. During the 1950s, about 300,000 legal aliens were admitted each year; now, about twice as many legal immigrants enter the U.S. on an annual basis. Until the mid-1960s, the vast majority of immigrants to the U.S. were of white, European stock. Today, Europeans account for only 11 percent of new entrants. Most legal immigrants are now either from Latin America (38 percent) or Asia (40 percent). And even among these new arrivals, there is a multitude of nationalities and ethnic subgroups, each with its own customs, cultures, traditions, and problems of acculturation.

In 1980, one in five Americans was a member of a minority group (that is, either black, Hispanic, or Asian); by 2030, one in three will be from minority backgrounds. While blacks are still the largest minority group in the U.S., representing about 60 percent of all minority people, the size of the Hispanic population (also referred to as Latinos) has been increasing rapidly. The U.S. Bureau of the Census projects that by 2030 the number of Hispanics may be as high as 59 million, compared to 20 million today. Hispanics are likely to represent about 18 percent of the total population in 2030, while blacks will account for about 15 percent. The number of Asians and Pacific Islanders grew by 70 percent between 1980 and 1988. Asians and other minority groups will represent roughly 5 percent of the population by 2030.

The changes in racial and ethnic composition of the U.S. can already be seen in many local areas. In Detroit, Atlanta, Baltimore, and New Orleans, for example, blacks comprise a majority of the population. Hispanics are the dominant population group in cities such as El Paso, San Antonio, and Miami. If current trends hold, non-Hispanic whites will assume minority status in California and Texas by 2010. Indeed, use of the term "minority" could become an obsolete political label by the middle of the next century.

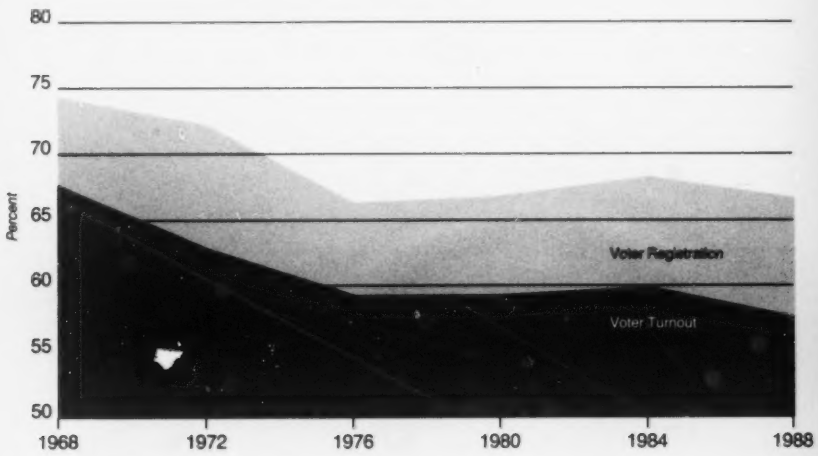
Political Participation: Who Votes

Changing demographic numbers are only part of the political equation. Who actually votes determines election outcomes. And in recent years, polling results show that voter apathy has been high. Only half of all eligible voters cast ballots in the 1988 presidential election — the lowest turnout rate in more than half a century.

The Census Bureau tracks voter registration and voter turnout through its national surveys. But because survey respondents tend to overreport their actual political behavior, survey-based measures of voter registration and turnout tend to be higher than those derived from actual election returns. Nonetheless, the Census Bureau's survey data provide information on long-term trends that are comparable over time and difficult to obtain

from other sources. Despite overreporting problems, the downward slide in political participation is clearly illustrated by these data. Voter registration, for example, dropped from 74 percent of the voting age population in 1968 to 67 percent in 1988 (see figure 1). Voter turnout rates followed a parallel course, dropping from 68 percent in 1968 to 57 percent in 1988. While the reasons for these declines are not fully understood, some analysts believe that they are caused by a combination of demographic factors and public alienation toward government.

Figure 1.
VOTER REGISTRATION AND TURNOUT RATES: 1968 TO 1988



Based on voting age population.

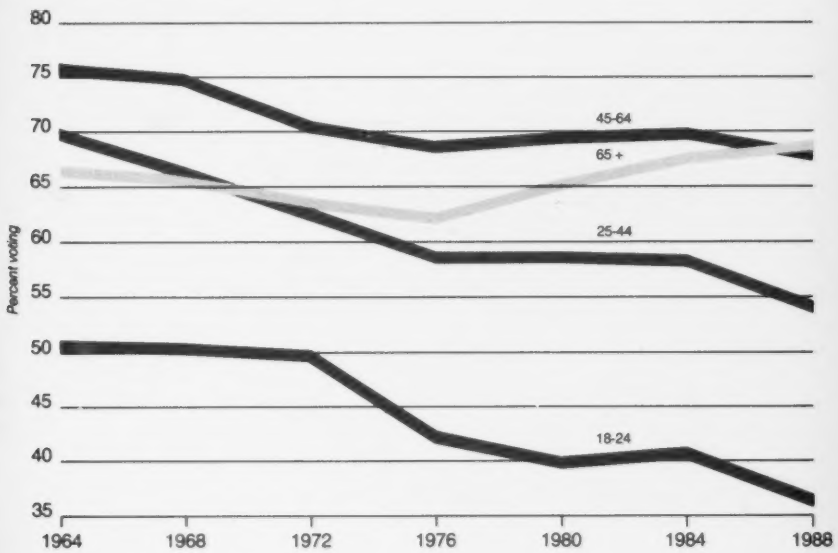
SOURCE: U.S. Bureau of the Census.

Age and Voting Patterns. Senior citizen voting power began to emerge as an important political phenomenon in the 1970s. Until then, voter turnout rates for persons age 65 and older were lower than those for persons between the ages of 25 and 64 (see figure 2). As political interest groups for the aged emerged and elderly voters were mobilized, voter turnout rates for this age group increased. By the 1988 presidential election, 69 percent of those age 65 and older cast ballots, compared to 68 precent of those age 45 to 64, according to Census Bureau statistics. Young adults (ages 18 to 24) tend to have the lowest voter turnout rates with only 36 percent casting ballots in the 1988 presidential election.

Two competing political theories are typically offered as explanations for age differences in voter turnout rates. One theory views political participation primarily as a function of age – that is, as an individual gets older, he or she is more likely to vote. If this theory is correct, then the aging of the baby boom generation will cause an increase in voter turnout rates over the next several decades.

However, a competing theory sees political participation primarily as a function of the attitudes and patterns developed during young adulthood and carried forward throughout one's lifetime. Today's elderly generation, for example, grew up during Roosevelt's New Deal Administration — a time of government activism and a call for civic duty and responsibility. Today's youth cut their political teeth during the Reagan years when the guiding political philosophy was to limit government's role in society. If this latter theory of voting behavior is correct, then the declining trend

Figure 2.
VOTER TURNOUT RATES BY AGE: 1964 TO 1988



Based on voting age population.

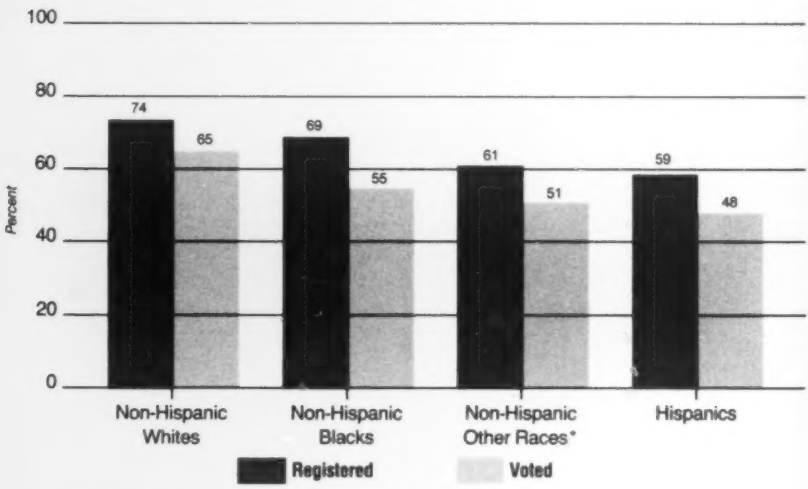
SOURCE: U.S. Bureau of the Census.

in political participation, especially among young adults, suggests that increasing numbers of people may abstain from voting. Electoral decisions would be left in the hands of a relatively small (and perhaps unrepresentative) share of the population.

Minority Voters. The increasing number of minority people in the population does not automatically translate into political strength. Recent immigrants, for example, are not yet citizens and therefore not eligible to vote. Hispanics

accounted for slightly more than 7 percent of the U.S. voting-age population in 1988, but just under 5 percent of voting-age citizens. One in three Hispanics age 18 or older is not eligible to vote because they are not citizens. Furthermore, minorities generally have lower rates of voter registration and voter turnout than whites. Among eligible voters (that is, persons age 18 and older who are citizens), only 55 percent of blacks, 51 percent of Asians and Pacific Islanders, and 48 percent of Hispanics went to the polls in 1988, compared to 65 percent of non-Hispanic whites (see figure 3).

Figure 3.
VOTER REGISTRATION AND TURNOUT BY RACE AND ETHNIC GROUP: 1988



Based on citizens age 18 and older.
**Primarily Asian Americans and Pacific Islanders.*

SOURCE: U.S. Bureau of the Census.

The growing size of the minority population suggests that minority voters will hold more power in determining political outcomes in the future. While this presents an opportunity for minorities to increase their share of political influence, the growing social, economic, and cultural diversity of minorities suggests that they will not coalesce into a single voting bloc. Political appeals to minority voters will require a sophisticated understanding of voter behavior and demographic trends. Furthermore, failure to encourage and facilitate greater political participation of these groups can only build a dangerous and counterproductive sense of exclusion and frustration in this growing group of potential voters.

Women Voters. Voter registration and turnout rates for women have been increasing in recent years and now exceed those of men. Because women outnumber men in the population, they have cast more ballots than men ever since 1964. In the November 1988 election, for example, nearly 7 million more women than men voted.

Younger women are primarily responsible for the increasing rates of women's political participation. Voter turnout rates in 1988 for women age 45 and younger were about 4 percentage points higher than those of their male counterparts; turnout rates for women over age 54 were below those of men. The increased presence of women in the electorate parallels gains made in numerous other areas such as education and business. As today's young women grow older and carry forward this pattern of political participation, the voter turnout rate of older women is expected to increase.

The political implications of women's increasing voter strength, however, is not entirely clear. A "women's vote," in terms of a unified voting bloc has never materialized. Public opinion polls report that women tend to be more liberal in their views on issues such as abortion, the need for child care, or flexible work place policies, but even in these areas, strong and differing political opinions can be found among women voters. The voting strength of women makes them an important force in electoral politics, but their interests cannot be cast simply in terms of single issue politics.

Factors Influencing Voting Trends

The downward spiral in voter registration and turnout has become a worrisome trend for political analysts. Many reasons account for the decline, but at least three demographic factors – educational levels, income patterns, and mobility rates – are likely to exert an influence on the future levels of political participation.

Education. Research on voting patterns finds that education is one of the strongest predictors of voting behavior. The more education one receives, the more likely it is that a person will vote. College graduates have the highest levels of political participation (that is, voter registration and voter turnout) and have been least affected by the downward slide in voter trends. Nonetheless, as overall educational levels in the U.S. have risen in recent years, political participation rates have declined.

The relationship between education and voting suggests that our educational institutions have a major role to play in preparing students for their responsibilities as citizens. Young people must better understand that the basis of democracy and self-government requires, at a minimum, that people take the time to learn about the issues and

to vote. Higher education, in particular, must be made more accessible to all people, but especially to minorities, in order to help raise the political participation rates of future generations of voters.

Income. Like education, income is also used as a predictor of political participation. In 1988, only 39 percent of people whose family income was under $10,000 voted, compared to 76 percent of those with family income of $50,000 or more. The drop in voter turnout rates since 1964 has been particularly notable among low-income voters.

A number of studies have found that income and wealth have become more concentrated within a small segment of society, leaving a wider gap between the rich and the poor. Families in the top 20 percent of the nation's income distribution accounted for 40 percent of all income in 1967 and 44 percent in 1987. Meanwhile, families at the bottom 20 percent of the income scale lost ground, declining from 5.5 percent to 4.5 percent. Middle-income families also held a smaller share of national income by 1987. The number of young adults (ages 18 to 34) living in poverty in 1987 was nearly 50 percent higher than in 1977. Economic polarization not only could lead to less representative government, but also give rise to political polarization and demagoguery.

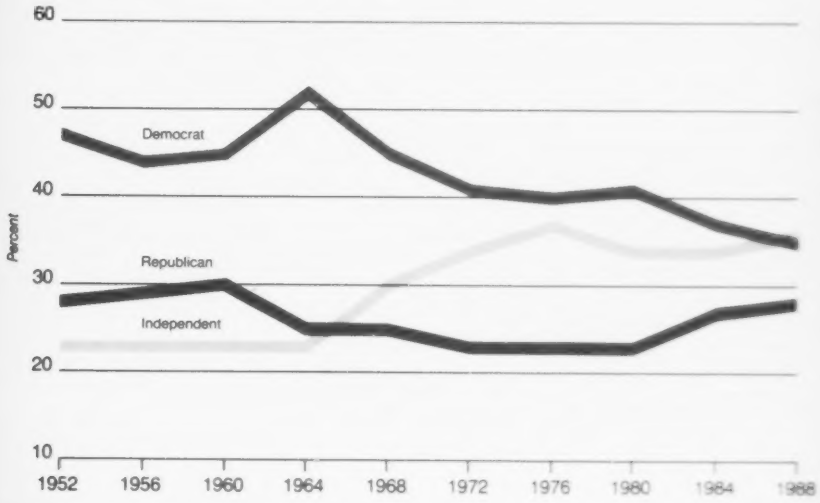
Migration. Each year about one in five Americans changes residence. In any five-year period between 1970 and 1985, about one in every four persons moved to a new county, and nearly one in every 10 moved to a new state. A number of demographic trends, however, might dampen mobility rates in the future. The aging of the population, for example, could mean a slowing of geographic mobility rates because older people tend to move less frequently than younger people. Changing family patterns also could lower mobility rates. Dual-earner couples may be less inclined to move great distances because of the need to find employment opportunities for both workers. Single parents and elderly living alone may be less inclined to give up established and familiar support systems.

People who stay in one place for a long time are more likely to become involved in community affairs, including elective politics. People who move typically have to re-register to vote, which provides at least a partial barrier to political participation. Increased community stability in some areas may mean higher voter turnout rates in the 1990s.

Party Identification

Party identification is generally regarded as an indicator of how people will vote. In 1952, 47 percent of adults identified themselves as Democrats. By 1988, only 35 percent considered themselves aligned with the Democratic Party (see figure 4). Identification with the Republican Party

Figure 4.
POLITICAL PARTY IDENTIFICATION: 1952 to 1988



SOURCE: University of Michigan, National Election Studies data.

has remained fairly constant at 28 percent despite some fluctuation during the period. What has changed most is the proportion of people who considered themselves Independents. In 1988, 36 percent of voters did not identify with either major political party, compared with 23 percent in 1952. Public opinion polls find that even among those who express a party preference, party identification or commitment is weaker now than in the past.

Regional Patterns. Much of the decline in Democratic Party identification comes from losses in the South. In the 1950s, 71 percent of Southern whites regarded themselves as Democrats, and only 22 percent called themselves Republicans. By the mid-1980s, the proportion of Democrats and Republicans was nearly equal — 46 and 42 percent, respectively. The result of this shift is that party identification among Southern whites now is more like the pattern found in other regions of the country. Some political analysts see continued migration to the South as a demographic trend likely to favor the Republican Party. Others, however, say that it is unclear whether people moving to new areas bring their political preferences with them or assume those of their new environment.

Minorities. For the past 30 years, black Americans have voted overwhelmingly for Democratic candidates. The majority of Hispanics also align themselves with the Democratic Party, but the political leanings of the Latino community often are tied to national origin. Puerto Ricans and Mexican-Americans tend to be Democrats; Cuban-Americans identify with Republicans. Party identification of Asian-Americans is less well known, largely because there is insufficient data to conduct in-depth and reliable studies on this population group. Nonetheless, both the Republican and the Democratic Parties have been closely watching and courting the votes of minorities, especially as this segment of the population grows.

Because party identification is strongly associated with socioeconomic status (that is, higher-income people are more likely to identify with the Republican Party and lower-income people with the Democratic Party), growth in the number of middle- and upper-income black families could favor the Republicans. The number of black families with incomes of $50,000 or more (in 1988 dollars) has grown from 392,000 in 1982 to 934,000 in 1988. Younger blacks who have grown up in more affluent homes are more likely to identify with the Republican Party than middle-aged and older blacks whose political ethos was formed during the civil rights struggles of the 1940s, 1950s, and 1960s. Still, most analysts expect the vast majority of blacks to support Democratic candidates in the next decade.

Republicans have made inroads among Hispanics in the 1980s, gaining votes and recruiting Hispanics as candidates. According to Univision, a Spanish-language TV network, Cuban-Americans make up 53 percent of all registered Republicans in the Miami area, and 8 percent of Florida's Republican voters. However, Hispanics in Texas (who are primarily Mexican-Americans) account for approximately 25 percent of the Democratic vote in that state.

While the share of voters who say they are Democrats has fallen, Democrats still outnumber Republicans by a slight margin. The idea of translating the changing demographic numbers into a political advantage will be a significant challenge for both parties during the 1990s.

POLITICAL GEOGRAPHY

The linkage between demographic change and governmental structures is never more apparent than in issues of political geography. In the 1960s, the courts fashioned the *one person-one vote* principle which required political districts to be relatively equal in population size. Equal populations were required to ensure that the vote of one citizen would carry as much weight as the vote of any other citizen. Census data are the basis for determining when districts are malapportioned and for correcting the problem.

Passage of the Voting Rights Act of 1965 also required the use of census data to determine when the voting rights of blacks and other minorities were being jeopardized. Now, any change in election procedures, including redistricting plans, which reduces the voting strength of minorities is illegal. Census data are used to identify minority population concentrations that have been fragmented or otherwise diluted.

With U.S. birth rates at relatively low levels, internal migration, as well as immigration from abroad, account for much of the population growth (or decline) of states and local areas. For nearly three decades, two main trends have been apparent: first, sustained migration from the northern states to the sunbelt; and second, movement away from the older central cities to the suburban fringes of metropolitan areas. These population changes will require the reallocation of seats in Congress and other political bodies in the coming decade.

▲ **Population changes that occurred during the 1980s could lead to fierce political battles in many state legislatures as they redraw Congressional and legislative district boundaries after the 1990 Census.**

Reapportionment

Changing residential patterns directly impact the reapportionment of seats in the U.S. House of Representatives and the redistricting of state and local legislative bodies. As the population shifts to the sunbelt and to the suburbs, it creates new political alignments and a new balance of power nationally and within local jurisdictions. Seventeen Congressional seats moved from states in the Northeast and Midwest to states in the South and West in the reapportionment of Congress after the 1980 Census. Fifteen more seats are likely to shift after the 1990 Census and another 11 seats are expected to move from the frostbelt to the sunbelt after the 2000 Census.

About twice as many seats are now at stake for reapportionment than during earlier times. Between 1930 and 1970, roughly eight to 10 seats were reallocated among regions after each census. Prior to 1910, Congress simply added more seats to the House of Representatives as the population expanded. In 1910, the number of seats was fixed at 435, except for a period during the 1950s when two seats were added temporarily because Alaska and Hawaii were admitted to the Union.

Many political observers believe that Congressional reapportionment in 1991 will be particularly beneficial to minority groups. More than half (53 percent) of the black population lives in the South, more than half (60 percent) of all Asian-Americans live in the West, and about three-quarters (76 percent) of the Hispanic population lives in the South and West. Indeed, two-thirds of all U.S. Hispanics live in California, Texas, and Florida, and collectively, these states are likely to gain 13 seats in Congress following reapportionment. Minority voters are also likely to be a key factor in determining national elections in the future. By 2001, three states with large minority populations (California, Texas, and Florida) will have 42 percent of the electoral votes needed to elect the President.

Figure 5.
PARTY CONTROL OF STATE LEGISLATURES AND GOVERNORSHIPS: MARCH 1990

Alaska
Hawaii
Party that controls legislature and governorship:
Democrats control both
Republicans control both
Both houses of legislature controlled by one party; other party controls governorship
Legislature split between parties
Nebraska has a nonpartisan legislature and a Republican governor.

SOURCE: The Council of State Governments.

Redistricting

Although redistricting activity will be especially active in states gaining or losing Congressional seats, most states will have to redraw Congressional district lines after the 1990 Census to meet the one person-one vote criteria. Media attention no doubt will focus on Congressional redistricting, but other political bodies also will be redistricted in 1991. New state legislative districts will be created; and the boundaries of thousands of city and county election districts, school districts, and other special administrative districts will be

redrawn. Changing residential patterns will impact on these results. Almost two-thirds (64 percent) of all population growth between 1980 and 1986 occurred in suburban locations. Thus, suburban areas will gain increased political clout in Congress and state legislatures at the expense of rural areas and large central cities.

Redistricting, however, is not a mechanical process. There are many ways to draw district lines to meet legal guidelines, and even slightly different boundaries may lead to very different election results. Since the boundaries of a district – and therefore the people who live in it – strongly affect who is likely to be elected to represent it, politicians and interest groups have a keen interest in redistricting. Responsibility for redrawing Congressional and state legislative districts is generally shared between the governor and the state legislature, although the arrangements vary from state to state. Redistricting can give rise to some fierce partisan battles. As of March 1990, Democrats controlled both the state legislature and the governorship in 15 states; Republicans held similar control in four states (see figure 5). In all other states, control of legislative and administrative branches was shared between parties.

ELECTED LEADERS

While demographic changes have profoundly affected the composition of the voting electorate, elected officials are still overwhelmingly non-Hispanic, white men. Only 20 percent of officeholders are women, 2 percent are black, and 1 percent are Hispanic. These numbers are beginning to change, however, as more women and minorities enter the political arena. Passage of the Civil Rights Act of 1964 and the Voting Rights Act of 1965 marked turning points for increased minority participation in American politics. Similarly, the founding of the National Women's Political Caucus in 1971 to promote women's entry into positions of political leadership is regarded by some scholars as a watershed for women. Over the past 20 years, the list of "firsts" and significant milestones has expanded rapidly:

- Since 1970, the number of black elected officials has increased nearly five-fold, with nearly 7,200 blacks now serving in public office. Twenty-four blacks now serve in the U.S. Congress, and more than 300 blacks serve as city mayors – 10 of whom represent cities of over 400,000 people (see table 1).

- Since 1971, the number of women serving in state legislatures has tripled. Women now account for approximately 17 percent of all state legislators nationwide.

- Since 1974, the number of Hispanic elected officials has doubled from 1,500 to 3,700 nationwide. While New Mexico and Arizona have had Hispanic governors in the past, Florida is the only state currently led by an Hispanic. There are 9 Hispanics in the U.S. House of Representatives, and three major cities – San Antonio, Denver, and Miami – as well as 15 other cities with populations exceeding 30,000, are led by Hispanic mayors.

Table 1.
CITIES OF OVER 400,000 WITH A BLACK MAYOR: MARCH 1990

City	1988 Population	1980 Percent Black	Mayor
New York	7,353,000	25	David Dinkins
Los Angeles	3,353,000	17	Thomas Bradley
Philadelphia	1,547,000	38	W. Wilson Goode
Detroit	1,036,000	63	Coleman Young
Baltimore	751,000	55	Kurt Schmoke
Washington, D.C.	617,000	70	Marion Barry
New Orleans	532,000	55	Sidney J. Barthelemy
Cleveland	521,000	44	Michael White
Seattle	502,000	9	Norman B. Rice
Atlanta	420,000	67	Maynard Jackson

SOURCE: U.S. Bureau of the Census

- Until 1974, no Asian-American or Pacific Islander from the U.S. mainland had been elected to the U.S. Congress. Now, six Asian-Americans/Pacific Islanders serve in Congress. The Governor and Lieutenant Governor of Hawaii are Asian-Americans/Pacific Islanders, as is the Secretary of State in California. Nineteen cities have Asian-Americans/Pacific Islanders as their mayor.

- Until 1974, no woman had ever been elected governor in her own right. Since then, five women have been elected as governors, and 15 women have been elected as lieutenant governors.

- In 1977, Patricia R. Harris became the first black woman to serve in a presidential cabinet.

- In 1981, Sandra Day O'Connor became the first woman to be appointed to the U.S. Supreme Court.

- In 1989, L. Douglas Wilder of Virginia became the first black to be elected governor.

While even this partial list of accomplishments is impressive, many analysts worry that significant barriers remain that discourage talented individuals from seeking public office. The power of incumbency, particularly at the highest levels of office, often appears overwhelming. Among members of the U.S. House of Representatives who ran for reelection in 1988, 98 percent were successful. In the U.S. Senate, 85 percent of those running for reelection in 1988 were returned to

office. Women and minority candidates, therefore, often must run as challengers, unless an open seat becomes available.

The political gains that women and minorities have achieved to date have been largely at the grassroots levels of state and local government. Some analysts see this as an effective way to build a political career and a stepping stone toward higher office. Others regard the pattern as evidence of the barriers that exist in seeking higher public office.

Running a modern political campaign with its voter polls, radio and TV ads, and other media events, has become exceedingly expensive. Common Cause estimated that in 1988 the cost of running for a U.S. Congressional seat averaged nearly $400,000; for the U.S. Senate, nearly $4 million. Average campaign costs for state offices were generally lower, but this depends greatly on the office being sought and the geographic location of the campaign. For a newcomer who starts with no established base of support, little name recognition, and relatively little chance of winning, raising large sums of money can be a formidable task.

▲ **The number of black federal and state judges rose from 58 in 1961 to 824 in 1986 — over half of them were in elected positions.**

Many observers fear that the enormous (and rising) costs of political campaigns undercut the democratic and representative nature of government. The current system, critics charge, makes politicians unduly vulnerable to the manipulations of special interest groups, or at very least, restricts officeholding to the wealthiest citizens. Public opinion polls during the first quarter of 1990 showed that a majority of American voters supported public financing of Congressional campaigns and strict limits on campaign contributions from political action committees (PACs). Whether legislators adopt campaign finance reforms that will level the political playing field will be an important policy choice of the 1990s.

PUBLIC SERVICE

Amid the glitter and glare of electoral contests, it is easy to overlook the most basic functions of government — the implementation of public policy goals and the delivery of public services. Many political analysts believe that the public sector is now facing a "quiet crisis" in its efforts to maintain an effective, ethical, and energetic work force. For over a decade, the public's confidence in the public sector has been eroding, and studies find that fewer people regard the public sector as an attractive place to start or build a career. Indeed, only 13 percent of senior executives in the federal government who were interviewed by the U.S. General Accounting Office (GAO) said that they would recommend that young people start their careers in government.

Demographic trends are likely to compound recruitment problems as labor markets tighten and the public sector competes for its civil servants within a slowly growing labor force. Three areas of public service must be considered in light of changing demographic trends: the anticipated growth of the public sector; recruiting and retaining employees; and the changing revenue base that supports the activities of the public sector.

Growth of the Public Sector

The expansion of government services and activities over the past 30 years has led to an increase in the size of the public-sector work force. Approximately 17.6 million people now work in public-sector jobs — an increase of 35 percent since 1970. The private-sector work force, however, expanded by roughly 45 percent during this same period. Public-sector employment represents about 14 percent of the national work force.

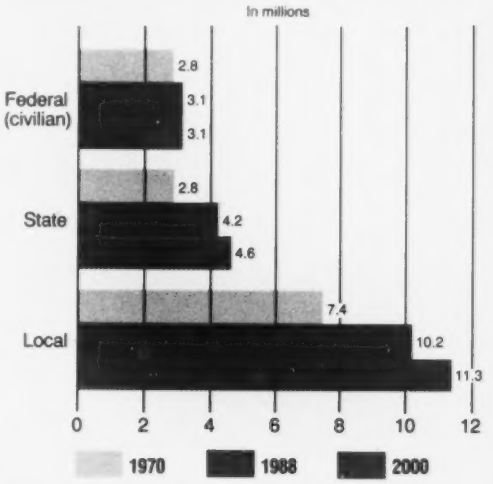
Nearly all of the growth in public-sector jobs occurred at the state and local levels of government (see figure 6). Federal (civilian) workers account for less than 20 percent of all public-sector employees. Even if active duty military personnel (about 2.2 million people) were added to the federal total, the size of the federal work force would be less than half the size of the work force employed by state and local governments.

State and local government grew during the 1970s primarily for two reasons. First, as the federal government expanded the number and size of its social and economic programs, state and local governments expanded their staffs to implement these new mandates. Second, because state and local governments are most directly responsibile for the delivery of public services, particularly for public education, at least part of the expansion was in response to the baby boom generation making its way through the school system. Even today, over half of all state and local government employees (7.5 million people) are teachers, school administrators, or others engaged in educational activities.

The retrenchment of federal government activity during the 1980s and tax revolts at the state and local levels combined to slow the pace of public-sector growth. Projections by the U.S. Bureau of Labor Statistics show that the federal work force is expected to remain at current levels over the next decade, while the number of state and local government employees will grow by 10 percent, increasing to about 15.9 million people.

Social and demographic forces such as the baby boom generation in its prime childrearing years, the increasing number of frail elderly, the rise in single-parent families, and growing income disparities, are helping to shape the kinds of public-sector workers and programs that will be needed in the future. Recent projections for the 1990s call for more than 400,000 additional elementary and secondary teachers; 160,000 home health care workers; 76,000 corrections officers; and nearly 50,000 social welfare aides. Tighter labor markets, the result of a shrinking pool of entry-level workers, will make it more difficult to recruit and retain needed government workers.

Figure 6.
NUMBER OF GOVERNMENT EMPLOYEES: 1970 TO 2000



Number of state and local employees in 2000 estimated by PRB from BLS data.

SOURCE: U.S. Bureau of the Census and U.S. Bureau of Labor Statistics.

Attracting People to the Public Sector

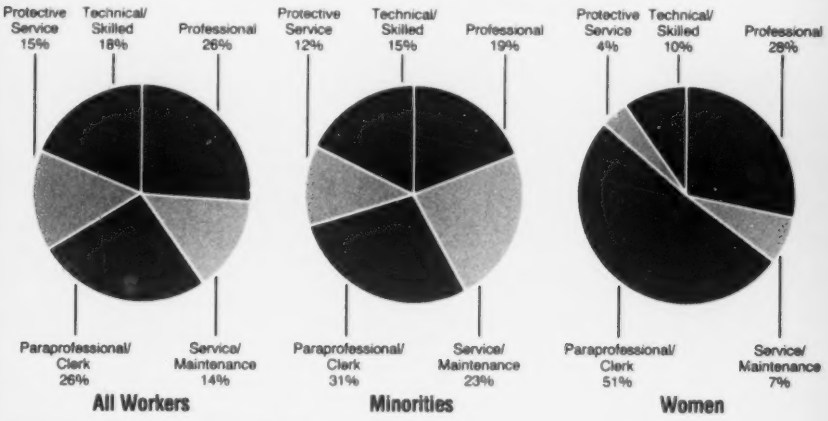
Between now and the turn of the century, the U.S. labor force will grow more slowly than it did over the past 20 years. Past growth, in large part, was the result of two demographic trends — the entry of the baby boom cohort into the work force and the increasing number of women who began to work outside the home. Future growth will be affected by the relatively small number of young adults in the population (the result of low birth rates in the past) who will soon enter the work force and the fact that women's labor force participation rates are slowly approaching those of men. These factors will produce a tighter, more competitive labor market. Projections show, however, that over 80 percent of new labor force growth will come from more women and minorities entering the work place. Non-Hispanic white men will represent a smaller share of all workers in the future.

In many ways, the public sector has taken the lead in providing employment opportunities for women and minorities. In 1986, 42 percent of full-time state and local government workers (excluding teachers and other educators) were women, and 26 percent were minorities. The federal government reports similar statistics — 45 percent of its work force in 1988 were women, 25 percent were minorities.

But women and minority workers often are found in the low-skilled, lower-paying jobs of the civil service (see figure 7). According to data from the Census Bureau, 41 percent of service and maintenance workers employed by state and local governments are minorities. Minorities account for

Figure 7.

STATE AND LOCAL GOVERNMENT EMPLOYEES BY OCCUPATIONAL CATEGORY: 1988



Excludes schools and other educational institutions.

SOURCE: U.S. Bureau of the Census.

only 19 percent of officials, administrators, and professionals. Women have a more equitable share of administrative and professional positions, but they tend to be concentrated at the lower end of the pay scale. Tightening labor markets could help boost pay and increase promotion opportunities for these workers.

But after a decade of federal budget cuts, periodic salary and hiring freezes, employment in the public sector seems very unattractive to many well-qualified, highly-skilled workers. According to the most recent survey data from the Bureau of Labor Statistics, federal worker salaries, on average, lagged 22 percent behind comparable salaries in the private sector. Among upper-management positions, the gap was even greater. Developing fair and competitive pay systems for public-sector employees at all levels of government will be essential if we are to attract and retain a highly-skilled and highly-motivated work force to carry out the important tasks of government in the decades ahead.

Increasingly, government agencies have turned to the practice of "contracting out" and hiring consultants in an effort to control costs and sometimes compensate for their own staffing deficiencies. *Privatization* of government services, as it is sometimes called, has been used in a variety of service areas from trash collection to prison operations. Experts differ on the effectiveness of this practice. Proponents argue that private companies interested in maximizing profits will perform the services more efficiently and productively than government bureaucrats insulated from

the rigors of the marketplace. Critics contend that substituting a private monopoly for a government agency is no guarantee that waste or abuse will be eliminated. They also feel that privatization frequently lacks the incentives (or accountability mechanisms) for promoting affirmative action policies for women and minorities. Nonetheless, governmental practices such as contracting-for-services or establishing public-private partnerships, are likely to be used increasingly as the public sector faces more competitive labor markets and continued budgetary constraints.

▲ **Tighter and more competitive labor markets will make it harder to recruit and retain public sector employees in the decade ahead.**

Changing Revenue Base

The flow of money into and out of governmental units, particularly states and local governments, is heavily dependent on demographic factors. More than 100 federal programs – from education to highways to welfare – use population data as a criterion for distributing funds. A change in the size or composition of a state's population, for example, can sometimes mean the gain or loss of millions of dollars in federal funding. With so much at stake, states and local governments have become extremely sensitive to the accuracy of census figures and the way in which statistical designations, such as *Metropolitan Statistical Areas* (MSAs) or the *poverty line,* are defined and measured.

Federal, state, and local revenue from all sources amounted to $1.7 trillion in fiscal year 1986–87, up 11 percent from the year before. This sum represented 38 percent of the 1987 GNP or $6,800 per person. More than half of all tax revenues (57 percent) goes to the federal government. States receive 26 percent and local governments, 17 percent. A portion of the federal revenues, however, is passed back to the states and localities through intergovernmental transfers and grant-in-aid programs.

Demographic trends play an important role in the tax structures of government. They indirectly affect the amount of money that will be collected, but also the processing of tax returns. The Internal Revenue Service (IRS), for example, will be faced not only with more tax returns as the number of households grows, but also with more complex returns. Demographic changes (such as the increase in divorce and remarriage, the complexities of child support and child custody arrangements, the growing number of dual-earner couples and retirees working part time) result in

more complicated filing procedures for both the individual taxpayer and the IRS. The IRS's ability to process the more complex tax returns of the future will be affected by its ability to attract qualified workers, especially in the fields of computer programming and accounting. Recruitment problems are not confined to the federal government. State tax administration offices are likely to experience similar difficulties.

For local governments, almost three-quarters of locally generated revenue is derived from property taxes. This makes local jurisdictions particularly sensitive to demographic change. Although the U.S. population grew by about 9 percent between 1980 and 1988, local area changes were far more dramatic and volatile. Some counties (such as Flagler County north of Daytona Beach, Hernando County on the outskirts of Tampa, and Gwinnet County near Atlanta) grew by more than 90 percent between 1980 and 1988. Other counties, particularly in rural areas (such as Lake County, Colorado; Greenlee County, Arizona; and Cibola County, New Mexico), lost more than a quarter of their 1980 populations by 1988.

Such dramatic changes significantly affect the ability of local governments to provide services. Schools, for example, typically receive 80 percent of their revenues from local property taxes. Over half (53 percent) of all spending on public infrastructure – such as roads, bridges, water and sewer systems – comes from local revenues. Although rapidly growing suburban areas may find it difficult to keep pace with increasing demands (even with increasing revenues), declining central cities and depopulated rural areas will find it more difficult to fund even basic services. Selective out-migration from cities and rural areas often means that despite a shrinking tax base, these jurisidictions must serve some of the poorest and most vulnerable population groups. Innovative approaches to spread costs and raise needed funds will be an important part of the policy debates of the 1990s, as will decisions on how best to cut services without jeopardizing the public welfare.

THE POLITICS OF CHANGE IN THE 1990s

America's political and governmental institutions have evolved over time in response to the nation's changing social, economic, and demographic trends. In many ways, the challenges that the country faces today in terms of its changing racial and ethnic composition, changing regional balances, and changing labor force needs are not unlike those of earlier times. Demographic change often creates political tensions and new demands for public services. But it also serves to reaffirm our heritage as a multicultural, multiracial society that is open and responsive to the challenge of change.

What has changed is our voracious appetite for quantitative data to identify problems, formulate policies, and assess political outcomes. The increasing ability of computers to process and analyze vast amounts of data have helped merge statistical science with political decision making. Although there seems to be a clear division of responsibilities – the U.S. Census Bureau and other statistical agencies are charged with collecting and tabulating the nation's statistical information, and Congress, federal agencies, and other governmental bodies develop policies based on the numbers – there is, however, considerable overlap and much discretion in defining exactly what is to be counted, tabulated, and analyzed. For example, how to define (and count) homeless people, whether to distinguish between legal and illegal aliens, and whether to make statistical adjustments for the undercount of minority groups were only a few of the controversial issues that confronted the design and development of the 1990 Census. As the need for numbers has grown, some analysts worry that the nation's statistical system is becoming too intrusive and sometimes too politicized. Despite such concerns, the system works fairly effectively and has weathered well the winds of change.

How we view issues of population, politics, and policy making in the 1990s will be influenced by the pace of change, technological advances, and demographic trends.

▲ **Billions of dollars of public funds are allocated to states and local areas each year on the basis of population counts.**

- **Keeping Pace with Change.** The faster society changes, the more quickly information becomes outdated. Rapid change will mean a greater demand for timely statistics that reflect current social and economic conditions. The bedrock of our statistical system is the decennial census that provides a detailed look at the size and social/economic characteristics of the population every ten years. But in the years between censuses, it can be very difficult to obtain detailed and reliable information on social and economic change, especially for states and localities. Some researchers and policy analysts favor the development of a mid-decade census. Others urge better use of sample surveys to update statistical information. The costs of taking the decennial census have soared as the Census Bureau strives to increase both the coverage and accuracy of the data. In 1980, the Census Bureau spent $1.1 billion to collect and process the census. Current estimates for the 1990 Census exceed $2.6 billion. Balancing our need to know with our willingness to pay for information will be a major demographic and political issue of the 1990s.

- **Advances in Technology.** As the nation grows, elected officials and political candidates must reach out to and communicate with a growing number of people. In 1920, the average Member of Congress had 244,000 people in his or her district; 62,000 were voters. By 1988, the average Congressional district had 566,000

people and 205,000 voters. Modern political campaigns have essentially become mass media campaigns. The age of electronic politics can virtually bring campaigns and election results right into voters' homes. Indeed, some futurists are predicting that voters in the 21st century will no longer need to go to central polling places to cast their ballots, but will be able to vote from their home via telephone and computer networks. Cable TV networks in North Carolina, Minnesota, Rhode Island, and other states are already enabling citizens to keep up with state legislative activities. As we move toward the 21st century, we need to harness the power of the high-tech, communications media to increase participation in the democratic system and better serve the public interest.

- **Demographic Trends.** Demographic changes play a vital role in shaping our political and governmental institutions. But demography is not destiny, and foresighted public policies are essential for assuring the nation's future welfare. The aging of the population, the increasing number of minorities, changing family patterns, and continued migration to the South and West will affect political structures, labor markets, and service needs. Many of the pressing problems that the nation faces today – educational reform, crime, drugs, health care, child care, infrastructure needs, and environmental concerns – are defined and shaped by demographic factors. But these problems also cut across traditional governmental lines of authority. Special districts and regional governing bodies may become more prominent as we search for solutions to address population needs. Addressing these issues in a coordinated fashion, however, may require a painful realignment of traditional lines of authority, funding arrangements, and mechanisms for accountability.

Strengthening the foundation of democracy in the 1990s will require a renewed effort to encourage and expand political participation and civic responsibility among our youth, our new immigrants, and anyone who currently stands outside the political process. Demography can be a powerful tool for understanding the changing political landscape and enhancing the effectiveness of government. How we respond to the challenge of change will shape our governmental structures and the nation's well-being in the 21st century.

BACKGROUND READINGS

Alonso, William and Paul Starr, eds., *The Politics of Numbers* (New York: Russell Sage Foundation, 1987).

Anderson, Margo J., *The American Census: A Social History* (New Haven, CT: Yale University Press, 1988).

Cavanagh, Thomas E., "Changes in American Voter Turnout, 1964–1976," *Political Science Quarterly*, Vol. 96 (Spring 1981).

Davidson, Chandler, ed., *Minority Vote Dilution* (Washington, DC: Howard University Press, second printing, 1989).

Fosler, R. Scott, et al., *Demographic Change and the American Future* (Pittsburgh: University of Pittsburgh Press, 1990).

Garcia, F. Chris, ed., *Latinos and the Political System* (Notre Dame, IN: Notre Dame Press, 1989).

Hill, David B. and Mary Mederios Kent, *Election Demographics* (Washington, DC: Population Reference Bureau, Inc., 1988).

Hudson Institute, *Civil Service 2000,* prepared for the U.S. Office of Personnel Management (Washington, DC: U.S. Government Printing Office, 1988).

Mandel, Ruth B., "The Political Woman," in *The American Woman, 1988–89: A Status Report,* Sara E. Rix, ed. (New York: W.W. Norton & Company, 1988).

National Commission on the Public Service, *Leadership for America: Rebuilding the Public Service* (Washington, DC: National Commission on the Public Service, 1989).

O'Hare, William P., ed., *Redistricting in the 1990s: A Guide for Minority Groups* (Washington, DC: Population Reference Bureau, Inc., 1989).

People for the American Way, *Democracy's Next Generation: A Study of Youth and Teachers* (Washington, DC: People for the American Way, 1989).

Preston, Michael B., Lenneal J. Henderson, Jr., and Paul L. Puryear, *The New Black Politics* (New York: Longman, 1987).

Reichley, A. James, ed., *Elections American Style* (Washington, DC: The Brookings Institution, 1987).

Salamon, Lester M., ed., *Beyond Privatization: The Tools of Government Action* (Washington, DC: The Urban Institute Press, 1989).

Thernstrom, Abigail M., *Whose Votes Count? Affirmative Action and Minority Voting Rights* (Cambridge, MA: Harvard University Press, 1987).

Wolfinger, Raymond E. and Steven J. Rosenstone, *Who Votes?* (New Haven, CT: Yale University Press, 1980).

STATE DATA TABLE

	POPULATION		U.S. HOUSE OF REPRESENTATIVES		VOTING AGE POPULATION	
	[illegible] (in 1000s)	% CHANGE [illegible]	DEMOCRATS/ REPUBLICANS[a] 1990	PROJECTED CHANGE IN SEATS 1990-2001	POPULATION AGE 18+ [illegible] (in 1000s)	% BLACK [illegible]
United States	248,239	8	257/175	0	181,982	11
Alabama	4,118	9	5/2	0	2,998	23
Alaska	527	24	0/1	0	357	3
Arizona	3,556	17	1/4	+ 2	2,537	2
Arkansas	2,406	9	2/2	0	1,745	14
California	29,063	15	27/18	+10	20,821	8
Colorado	3,317	16	3/3	0	2,432	4
Connecticut	3,239	5	3/3	0	2,474	7
Delaware	673	5	1/0	0	494	16
District of Columbia	604	– 3	NA	NA	479	65
Florida	12,671	13	8/11	+ 4	9,540	12
Georgia	6,436	14	9/1	+ 2	4,566	24
Hawaii	1,112	23	1/1	0	812	2
Idaho	1,014	19	1/1	0	699	1
Illinois	11,658	2	14/8	– 3	8,610	14
Indiana	5,593	2	7/3	– 1	4,096	8
Iowa	2,840	– 1	2/4	– 1	2,120	2
Kansas	2,513	6	2/3	– 1	1,842	5
Kentucky	3,727	4	4/3	– 1	2,746	7
Louisiana	4,382	11	4/4	0	3,111	29
Maine	1,222	7	1/1	0	902	*
Maryland	4,694	8	6/2	0	3,476	24
Massachusetts	5,913	*	10/1	– 1	4,557	4
Michigan	9,273	1	11/7	– 3	6,767	13
Minnesota	4,353	5	5/3	– 1	3,187	1
Mississippi	2,621	9	5/0	0	1,839	31
Missouri	5,159	5	5/4	0	3,829	10
Montana	806	11	1/1	0	584	*
Nebraska	1,611	3	1/2	0	1,179	3
Nevada	1,111	20	1/1	0	788	6
New Hampshire	1,107	13	0/2	0	810	1
New Jersey	7,736	5	7/6	– 1	5,809	13
New Mexico	1,528	19	1/2	0	1,057	2
New York	17,950	– 2	20/12	– 5	13,584	15
North Carolina	6,571	10	8/3	+ 1	4,853	20
North Dakota	660	6	1/0	0	484	1
Ohio	10,907	*	11/10	– 3	8,032	10
Oklahoma	3,224	12	4/2	0	2,369	6
Oregon	2,820	14	3/2	0	2,081	1
Pennsylvania	12,040	– 2	12/11	– 4	9,153	9
Rhode Island	998	1	0/2	0	763	3
South Carolina	3,512	11	4/2	0	2,622	27
South Dakota	715	4	1/0	0	516	*
Tennessee	4,940	9	6/3	0	3,642	15
Texas	16,991	17	19/8	+ 6	11,856	11
Utah	1,707	22	1/2	0	1,060	1
Vermont	567	5	0/1	0	416	*
Virginia	6,098	11	5/5	+ 1	4,546	18
Washington	4,761	16	5/3	+ 1	3,458	3
West Virginia	1,857	1	4/0	– 1	1,398	3
Wisconsin	4,887	3	5/4	– 1	3,581	4
Wyoming	475	23	0/1	0	336	1

[a]Based on February 1990 data when there were three vacant seats: two in New York and one in New Jersey.
[b]Percent casting votes in November presidential election.
[c]Excludes women elected to judicial, law enforcement, and school board positions.
[d]Includes federal, state, and local government employees, except U.S. military personnel.

* – LESS THAN 0.5 PERCENT
NA – NOT APPLICABLE

SOURCES:
Total Population – U.S. Bureau of the Census, news release CB89-204, and series P-25, No. 1053;
U.S. House – U.S. House of Representatives, *Official List of Members*, 1990;
Voting Age Population – U.S. Bureau of the Census, *Statistical Abstract of the U.S. 1989*, table No. 436, and series P-25, No. 1044;
Elected Officials – U.S. Bureau of the Census, *1987 Census of Governments*, GC87-(1)-2, 1990;
Black Officials – Joint Center for Political Studies, *Black Elected Officials: A National Roster 1989*, 1990;
Hispanic Officials – National Association of Latino Elected Officials, *National Roster of Hispanic Elected Officials*, 1989;
Women Officials – Center for the American Woman and Politics, National Information Bank on Women in Public Office, Rutgers University, 1989;
Public Employees – U.S. Bureau of the Census, *Public Employment in 1988*, 1989, and Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment*, 1988.

		ELECTED OFFICIALS				PUBLIC EMPLOYEES		
% HISPANIC 1989	% VOTER[b] 1988	TOTAL 1987	BLACK 1989	HISPANIC 1989	WOMEN[c] 1989	TOTAL[d] 1988 (In 1000s)	% OF TOTAL LABOR FORCE 1988	
7	50	497,693	7,191	3,783	17,665	17,417	14	U.S.
1	45	4,324	694	0	297	296	16	AL
2	62	1,760	4	2	263	63	26	AK
15	45	3,190	12	268	125	239	14	AZ
1	47	8,337	318	1	448	154	14	AR
22	47	19,283	275	580	543	1,921	14	CA
11	56	8,043	14	208	365	295	16	CO
4	56	8,497	63	17	285	200	11	CT
2	51	1,230	23	2	70	47	13	DE
3	39	326	242	0	7	267	79	DC
9	45	5,277	179	62	390	746	12	FL
1	39	6,568	483	0	303	480	15	GA
6	43	164	1	1	30	93	15	HI
4	58	4,680	0	2	187	73	15	ID
7	53	38,960	444	41	187	748	13	IL
1	53	11,367	68	9	35	369	13	IN
1	59	17,052	9	1	794	209	14	IA
3	54	16,417	23	7	515	202	16	KS
*	48	7,397	68	0	24	231	14	KY
2	51	4,976	521	7	220	282	15	LA
*	62	6,982	3	0	304	94	16	ME
2	49	1,953	118	1	200	401	16	MD
3	58	13,644	38	7	258	392	12	MA
2	54	19,313	306	10	2,925	515	13	MI
1	66	18,897	12	5	618	302	13	MN
*	51	4,951	646	0	194	190	17	MS
1	56	17,126	163	4	47	339	13	MO
1	63	5,650	0	4	157	67	17	MT
2	57	15,069	4	4	279	136	17	NE
7	46	1,178	10	5	40	69	12	NV
1	56	6,725	3	0	257	69	11	NH
7	52	9,361	199	53	478	523	13	NJ
36	47	2,101	6	647	119	133	19	NM
10	48	26,035	252	71	954	1,420	17	NY
1	43	5,544	449	0	407	436	13	NC
1	62	15,144	0	0	211	64	19	ND
1	55	19,773	216	8	1,174	698	13	OH
2	49	9,298	115	5	330	248	16	OK
3	59	8,374	9	10	384	208	15	OR
1	50	29,611	139	9	54	960	12	PA
2	53	1,124	10	1	55	64	12	RI
1	39	3,700	373	1	237	241	14	SC
1	62	9,252	3	0	187	60	17	SD
*	45	6,852	146	0	275	329	14	TN
21	44	26,961	312	1,693	836	1,139	14	TX
4	60	2,593	1	4	151	139	18	UT
1	59	8,024	2	0	143	40	13	VT
2	48	3,124	144	0	276	518	17	VA
3	55	8,042	20	18	400	348	15	WA
*	47	2,844	24	0	237	124	17	WV
1	62	18,253	24	5	275	342	13	WI
5	50	2,343	2	10	115	50	22	WY

REVIEW PANEL

Thomas E. Cavanagh
Director
Center for the Study of American Government
The Johns Hopkins University

Harvey M. Choldin
Professor of Sociology
University of Illinois at Urbana

Angelo Falcón
President
Institute for Puerto Rican Policy

Joseph L. Fisher
Distinguished Visiting Professor of Political Economy
George Mason University

R. Scott Fosler
Vice President and Director of Government Studies
Committee for Economic Development

Thomas E. Mann
Director
Governmental Studies Program
The Brookings Institution

Milton Morris
Director
Research Department
Joint Center for Political Studies

Harry Pachon
Kenan Professor
Department of Political Science
Pitzer College

James M. Souby
Executive Director
Council of State Policy and Planning Agencies

Pat Towner
Executive Director
California Commission on the Status of Women

Linda F. Williams
Fellow
John F. Kennedy School of Government
Harvard University